[fol. 1]

IN UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK

In Equity. No. 63-32

TEXTILE MACHINE WORKS, Plaintiff,

vs.

LOUIS HIRSCH TEXTILE MACHINES, INC., Defendant

BILL OF COMPLAINT

Textile Machine Works brings this Bill of Complaint against Louis Hirsch Textile Machines, Inc., and says:

1. The plaintiff, Textile Machine Works, is a corporation organized and existing under and by virtue of the laws of the State of Pennsylvania, with an established place of business at Wyomissing, County of Berks, in said State, and is a resident of said State. The defendant, Louis Hirsch Textile Machines, Inc., is a corporation organized and existing under and by virtue of the laws of the State of New York, with a principal place of business in the City of New York, in said State, and is a citizen of said State and an inhabitant of the Southern Judicial District thereof, at which place, and elsewhere in the United States, it has committed the acts of infringement hereinafter complained of.

2. This is a suit in equity, arising under the patent laws of the United States.

[fol. 2] 3. Heretofore, and prior to the 5th day of November, 1925, Richard E. Schletter, of Philadelphia, Pennsylvania, was the original, first and sole inventor of certain new and useful Improvements in Attachments for Flat-Knitting Machines, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application for Letters Patent of the United States therefor, and not in public use, or on sale, in this country for more than two years before his application, and not abandoned by him, and not first patented or

caused to be patented by him, or his legal representatives, or assigns, in any foreign country upon an application filed more than twelve months prior to the filing of said application in this country.

4. On or about the 5th day of November, 1925, Richard E. Schletter made application in due form of law to the Commissioner of Patents of the United States, upon his said invention and duly made oath to the specification thereof. Thereafter, the said Richard E. Schletter did, by assignment dated November 3, 1925, and duly recorded in the United States Patent Office under date of November 5, 1925, assign and transfer to Schletter & Zander, Inc., a corporation of the State of Pennsylvania, its successors and assigns, all right, title and interest in said invention of Improvements in Attachments for Flat-Knitting Machines and the Letters Patent to issue therefor. Thereafter, the said Schletter & Zander, Inc., the Pennsylvania corporation, [fol. 3] did, by assignment dated April 9, 1929, and duly recorded in the United States Patent Office under date of April 26, 1929, assign and transfer to Schletter & Zander, Inc., a corporation of the State of Delaware, its successors and assigns, all right, title and interest in said invention, and the Letters Patent to issue therefor; whereupon such proceedings were had that on the 21st day of May, 1929, Letters Patent of the United States No. 1,713,628, were duly and regularly issued to the said Schletter & Zander, Inc., a Delaware corporation, as assignee by mesne assignment of the said Richard E. Schletter, as in and by said original Letters Patent No. 1,713,628, or a duly authenticated copy thereof, here in Court to be produced, will more fully and at large appear; whereby there was granted and secured to the said Schletter & Zander, Inc., the Delaware corporation, its successors and assigns, for the term of seventeen years from the 21st day of May, 1929, the exclusive right to make, use and sell said improvements within and throughout the United States.

5. Thereafter, to wit, on or about the 10th day of December, 1929, the said Schletter & Zander, Inc., a corporation of the State of Delaware, being then fully possessed of said Letters Patent No. 1,713,628, and of the exclusive rights granted thereby, did, by an assignment in writing, duly executed and delivered, and recorded in the United States Patent Office under date of December 20, 1929,

assign and transfer to the Plaintiff, Textile Machine Works, all right, title and interest in said Letters Patent No. 1,713,628, together with all exclusive rights thereto per- [fol. 4] taining, and said Schletter & Zander, Inc., whose corporate title has by due and regular proceedings been changed to Signature Hosiery Company, Inc., has also assigned and transferred to Plaintiff all rights of recovery for infringement of said Letters Patent occurring prior to the assignment thereof.

6. By virtue of the premises, Plaintiff now is, and continuously since the 10th day of December, 1929, has been possessed of the entire right, title and interest, legal and equitable, in and to said Letters Patent No. 1,713,628, in and to the exclusive rights thereby granted, within and throughout the entire United States and the territories thereof, and is also possessed of all rights of recovery for infringement of said Letters Patent from and after May 21, 1929, the date of issue thereof.

7. The Plaintiff has manufactured and sold, or caused to be manufactured and sold, large numbers of machines or devices embodying or employing the invention of said Letters Patent No. 1,713,628, and has expended, and now is expending large sums of money in said manufacture and sale; and the same are of great use and benefit to the public and of great value to the Plaintiff, and the public generally have acknowledged the utility and value thereof, and acquiesced in the validity of the said Letters Patent and of the exclusive rights of the Plaintiff therein.

8. The Defendant has been duly notified of said Letters [fol. 5] Patent and of the infringement thereof, hereinafter complained of, and has, as Plaintiff is informed and believes, continued, after such notice, said infringement.

9. On information and belief, Plaintiff avers that Defendant, well knowing the premises, and subsequently to the issuance of said Letters Patent No. 1,713,628, and prior to the commencement of this action, at New York City, and elsewhere within the United States, and without the license and against the will and consent of the Plaintiff, has made, or caused to be made, and sold, and offered for sale, and is now making and selling, or offering for sale, and threatens hereafter to continue to make and sell, machines embodying and employing the invention described in and

patented by said Letters Patent No. 1,713,628 in infringement of the claims thereof, and particularly in infringement of Claims 1, 3, 14 and 15 thereof, and in violation of the exclusive rights of the Plaintiff aforesaid.

10. Plaintiff is informed and believes, and therefore avers, that the said Defendant is prepared and ready to continue said infringement, and is continuing the same, and threatens hereafter to continue the same, and unless it is restrained from so doing, Plaintiff will suffer great and irreparable damage from the said unlawful acts, and that said Defendant has received, and still is receiving from said infringing acts great gains and profits, which in equity belong to the Plaintiff; and the amount of such gains and profits the Plaintiff does not know, and prays discovery thereof.

[fol. 6] Wherefore, Plaintiff prays:

(1) That an account be taken of the profits received by the Defendant and the damage to the Plaintiff in the premises.

(2) That the Defendant be ordered and decreed to pay over to the Plaintiff profits and gains received by the Defendant, and the damage suffered by the Plaintiff by reason of the infringement aforesaid.

(3) That the Defendant, its clerks, attorneys, agents, servants and workmen be enjoined and restrained, preliminarily until the hearing, and perpetually thereafter, from further infringement upon the said Letters Patent, and upon Plaintiff's exclusive rights in the premises.

(4) That the Plaintiff recover its costs to be taxed.

(5) Other relief.

(6) That a subpoena ad respondendum issue commanding the Defendant to appear and answer this Bill of Complaint.

Textile Machine Works, by Henry Janssen, President.

Attest: Ferdinand Thun, Secretary.

Howson & Howson, Solicitors for Plaintiff, 1 Cedar Street, New York City. Charles H. Howson, of Counsel for Plaintiff.

[fol. 7] *Duly sworn to by Henry Janssen. Jurat omitted in printing.*

IN UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

ANSWER

The defendant for its answer to the bill of complaint of the plaintiff, or as much thereof as it is advised is necessary to be answered, states:

[fol. 8] (1) The defendant admits the allegations of the first two paragraphs of the bill of complaint, except that it denies that it has committed any infringing acts in the Judicial District of the Southern District of New York or elsewhere.

(2) With respect to the allegations contained in paragraphs 3, 4, 5 and 6 of the bill of complaint concerning the issue and ownership of Letters Patent No. 1,713,628 the defendant admits that Letters Patent so numbered were issued on May 21, 1929, to Schletter & Zander, Inc., a Delaware corporation, as assignee by mesne assignment of Richard E. Schletter, but this defendant, on information and belief, denies that said Schletter was the inventor of the improvements, in attachments for Flat Knitting Machines described in said Letters Patent; denies that the same was not known or used by others before his alleged invention thereof; denies that the same was not patented or described in any printed publication in this or any foreign country before his alleged invention thereof or more than two years before the filing of his application for Letters Patent therefor; denies that the same was not in public use or on sale in the United States before his alleged invention thereof or more than two years before he filed his application for Letters Patent therefor; denies that the same had not been abandoned; denies that said Letters Patent were or are valid; and in connection therewith this defendant avers, upon information and belief, that said Schletter abandoned his said alleged invention and any and all his rights therein, and did not attempt

[fol. 9] to assert any claim thereto until after others had independently made large investments in connection with the manufacture and sale to the public in the United States of attachments embodying said alleged invention, and was at the time of his said application and the Letters Patent issued thereon barred by his abandonment, lack of diligence and inaction from asserting any claim therein or thereto. The defendant further states that it is without sufficient information to form a belief as to the allegations contained in paragraphs 5 and 6 of the bill of complaint and therefore denies the same.

(3) The defendant denies each and every allegation contained in paragraph 7 of the bill of complaint.

(4) The defendant admits that it received a notice from the plaintiff of an alleged infringement by it of Letters Patent No. 1,713,628 but it denies that it has infringed or is now infringing upon the same.

(5) The defendant denies each and every allegation contained in paragraphs 9 and 10 of the bill of complaint.

(6) The defendant is informed and believes and therefore avers, that said Letters Patent No. 1,713,628 was and is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the date of the alleged invention or discovery thereof by Richard E. Schletter, described and published, patented or described and con-
[fol. 10] tained in the following Letters Patent and/or other printed publications:

United States Patents

No. 980, April 9, 1861, J. K. & E. E. Kilbourn;
47,829, May 23, 1865, E. E. Kilbourn;
411,113, Sept. 17, 1889, G. Templeman;
408,561, Aug. 6, 1889, Wilcomb;
402,230, May 28, 1889, Scott & Williams;
878,724, Feb. 11, 1908, Guenther;
981,663, Jan. 17, 1911, Lieberknecht;
1,014,753, Jan. 16, 1912, Gee;
1,134,749, Apr. 6, 1915, Landenberger;
1,180,568, Apr. 25, 1916, Cecka;
1,198,482, Sept. 19, 1916, Schletter;

1,217,411, Feb. 27, 1917, Cecka;
1,564,438, Dec. 8, 1925, Muller;
1,547,501, July 28, 1925, Lack, et al.;
1,601,545, Sept. 28, 1926, Werfelman, et al.;
1,608,285, Nov. 23, 1926, Zwicky.

British Patents

No. 2,255, 1882, J. & H. Kiddier;
18,625, 1888, Templeman;
6,620, 1888, Templeman;
2,127, 1888, Aldridge;
18,461, 1888, Soroter;
15,129, 1889, Lamb, et al.;
4,967, 1890, Claringburns;
[illegible],627, 1891, Woodward;
7,068, 1891, Claringburns;
1,008, 1909, Greenhalgh;
208,362, 1923, Cotton;
997, 1859, Kilbourn & Kilbourn.

[fol. 11] German Patents

No. 6,273, July 19, 1878, Lamb & Lowe;
101,509, Mar. 15, 1898, Kunze;
138,709, Sept. 17, 1901, Hilscher;
153,673, Apr. 12, 1903, Richter;
331,506, Apr. 16, 1914, Schubert & Salzer;
330,731, Apr. 14, 1914, Schubert & Salzer;
139,073, Dec. 16, 1914, Max Ludwig;
(Gebrachsmuster) 242,936, Jan. 25, 1905, Ludwig.

French Patents

162,313, May 23, 1884, Lang & Chauvin;
411,580, June 20, 1910, Greenhalgh & Smith.

Publications

"Full Fashioned Knitting Machines," published by Textile Machine Works of Reading, Pa., in 1920.

(7) The defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,713,628 was and is void and of no effect in law in that the alleged invention or improvement described therein was in public use in the United States before the alleged invention by the said Rich-

ard E. Schletter, for more than two years prior to the application for said patent, and defendant further alleges that said alleged invention was known to, or used by others in the United States before the alleged invention of said Schletter. The names of such users and those having such knowledge, and the places of such public users are as follows

[fol. 12] Julius Kayser & Company of New York City, N. Y.
Textile Machine Works of Reading, Pa.
Frank Heyde, c/o Julius Kayser & Co., Brooklyn, N. Y.
A. Leopold, c/o Julius Kayser & Co., Brooklyn, N. Y.
John Beecherdt, c/o Merit Hosiery Co., Ozone Park, Long Island, N. Y.
Onyx Hosiery Company of Dover, N. J.
D. Nussbaum & Co., 8300 Atlantic Ave., Ozone Park, Long Island, N. Y.
F. Nussbaum, 8300 Atlantic Ave., Ozone Park, Long Island, N. Y.
J. Boch, 8300 Atlantic Ave., Ozone Park, Long Island, N. Y.

(8) The defendant is informed and believes, and therefore avers that the said Letters Patent was and is invalid and void because the alleged invention purported to be patented thereby did not constitute patentable knowledge or invention within the meaning of the patent laws in view of the prior state of the art, and in view of what was common knowledge on the part of those skilled in the art, all prior to the time of the alleged invention of the said Letters Patent No. 1,713,628 by the applicant thereof, which prior art and prior knowledge defendant is ready to aver, maintain and prove.

(9) Further answering, this defendant, on information and belief, avers that more than two years prior to the application of said Schletter for said Letters Patent No. 1,713,628 the alleged invention therein described and claimed [fol. 13] was in public use in this country at the factory of the Brentmore Knitting Mills at Philadelphia, Pa.

(10) Further answering, the defendant avers, upon information and belief, that the plaintiff is not entitled to the relief prayed for, or to any relief, because of its laches and the laches of its predecessors in title.

(11) The defendant denies that plaintiff is entitled to any injunction or to profits or damages or to an accounting, or any other relief, and hence prays to be dismissed, with its reasonable costs and charges in this behalf most wrongfully sustained.

Louis Hirsch Textile Machines, Inc., by Louis Hirsch.

Attest: D. D'A. Berger, Secretary. Darby & Darby, Solicitors for Defendant.

Duly sworn to by Louis Hirsch. Jurat omitted in printing.

[fol. 14] IN UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

AMENDMENT TO ANSWER DATED SEPTEMBER 18, 1934

Add the following patents in paragraph 6 of the answer under the subheading "British Patents":

No. 1991, 1882, Roe;
7476, 1837, Mather;
3123, 1864, Cotton;
3068, 1871, Lamb.

Insert the following after paragraph 8 of the answer:

[fol. 15] 8A. Further answering, this defendant on information and belief, alleges that if the said patent discloses patentable invention (which is elsewhere herein denied) then and in that event the patent is wholly void and invalid because the said patentee is not the original and first inventor of the subject matter thereof, the same having been first invented by others than the patentee and who were using due diligence to reduce the said invention to practice as follows:

J. Muller, of and at Brooklyn, County of Kings, and State of New York.

Dietrick J. Werfelman and Anton Strelz, of and at Brooklyn, County of Kings, and State of New York.

Melchior Zwicky, of and at Wyomissing, Pennsylvania.

As evidence of prior invention by the above enumerated individuals defendant will rely on the patents issued to them as follows:

Muller patent No. 1,564,488, granted December 8, 1925, on application filed October 20, 1923.

Werfelman and Strelz Patent No. 1,601,545, granted September 28, 1926, on application filed January 16, 1925.

Zwicky patent No. 1,608,285, granted November 23, 1926, on application filed July 21, 1923.

Insert the following after paragraph 9 of the answer:

9A. Further answering, this defendant alleges that the Letters Patent in suit is void and invalid on its face as be- [fol. 16] ing devoid of patentable subject matter in that no operative structure is therein shown or described.

Dated, New York, N. Y., September 18, 1934.

(Signed) Darby & Darby, Attorneys for Defendant.

IN UNITED STATES DISTRICT COURT, SOUTHERN DISTRICT OF NEW YORK

[Title omitted]

AMENDMENT TO ANSWER DATED DECEMBER 6, 1934

Add the following patents in paragraph 6 of the answer under the subheading "United States Patents":

No. 19,370, 1858, J. K. & E. E. Kilbourne;
500,953, July 4, 1893, W. T. Rowlett;
1,163,970, Dec. 14, 1915, Evan Chipman.

Add to same paragraph under the subheading "British Patents":

No. 10,405, July 21, 1884, Ernest de Pass;
573, Mar. 3, 1871, Henry Willatt, et al.

[fol. 17] Add to the same paragraph under the subheading "German Patents";

No. 117,153, 1900, Theodore Leiberknecht;
21,332, Dec. 2, 1881, Lane & Timaeus.

Add to paragraph 7 of the answer the following names:

Torresdale Hosiery Co. of Kensington Avenue and Erie Avenue, Philadelphia, Pa.
Adolf Schubert of Kensington Avenue and Erie Avenue, Philadelphia, Pa.
Hans Vetterman of Kensington Avenue and Erie Avenue, Philadelphia, Pa.
Lewis Beckert of Foxchase Knitting Mills, 27 Girard Ave., Philadelphia, Pa.

(Signed) Darby & Darby, Attorneys for Defendant.

Dated, New York, N. Y., December 6, 1934.

[fol. 18] In United States District Court, Southern District of New York

[Title omitted]

Amendment to Answer Dated March 23, 1935

Add the following to Paragraph 6 of the answer under the subheading Publications:

"Knitting Mathematics and Mechanisms," by John Chamberlain, prepared for the Textile Trades Advisory Committee of the City of Leicester Municipal Technical and Art Schools. Published by J. W. Hemmings' Capey, Printers, Charles Street, 1923. Title page and pages 125, 126 and 127.

(Signed) Darby & Darby, Counsel for Defendant.

Dated, New York, N. Y., March 23, 1935.

[fol. 19] In United States District Court, Southern District of New York

[Title omitted]

Stipulation as to Certain Testimony

It is hereby stipulated by and between counsel for the respective parties in the above-entitled suit, that either party may offer in evidence in this suit the complete testi-

mony (including all exhibits) of Sidney Mayer; Floyd E. Groff; William J. Jackson; Walter A. Stewart; Elmer R. Roth; Paul Guenther; Frank Heyde; Max Gruener; Arthur W. Mutchler; Percy Hockin; Adolph Hecker; Jacob Bock; Fred Drawert; and Ferdinand Nussbaum who testified in behalf of the party offering such evidence in the case of Textile Machine Works versus Alfred Hofmann, Inc., In Equity No. 4219 in the United States District Court for the District of New Jersey.

Such testimony may be received with the same force and effect as though the witness so testified in this cause in behalf of the party offering the same.

Howson & Howson, Attorneys for Plaintiff. Darby & Darby, Attorneys for Defendant.

Dated, November 27, 1934.

[fol. 20] In United States District Court, Southern District of New York

In Equity. No. 63-32

Textile Machine Works, Plaintiff,

vs.

Louis Hirsch Textile Machines, Inc., Defendant

Narrative Statement of Evidence

Before Hon. Walter C. Lindley, District Judge

New York, October 7th, 1935, 10:30 a. m.

Appearances

Howson & Howson, Esqrs., Solicitors for Plaintiff; Dexter N. Shaw, Esq., and Charles H. Howson, Esq., of Counsel.

Darby & Darby, Esqrs., Solicitors for Defendant; Samuel E. Darby, Jr., Esq., and Walter A. Darby, Esq., of Counsel.

Opening Statement for Plaintiff

Mr. Howson: I will indicate on the patent, if it has not already been done, the claims involved which are Claims 1, 3, 14 and 15 in suit.

[fol. 21] Plaintiff's Prima Facie Proofs

Mr. Howson: We offer in evidence a printed Patent Office copy of the Schletter patent, No. 1,713,628, in suit, and ask that it be marked Exhibit 1.

(Marked Plaintiff's Exhibit 1.)

STIPULATION AS TO CERTAIN FACTS, ETC.

Mr. Howson: I have here a stipulation which I wish to make of record. It reads as follows:

"It is stipulated and agreed by and between the parties to the above-entitled cause, as follows:

"1. That incorporation of plaintiff and defendant, Louis Hirsch Textile Machines, Inc., as pleaded in the bill of complaint, may be taken as proved.

"2. That title of patent to Schletter, No. 1,713,628, granted May 21, 1929, being the patent in suit, is in the Textile Machine Works, together with all rights of recovery for infringement thereof since the date of the patent.

"3. That since the grant of the Schletter patent No. 1,713,628, and subsequent to the 30th day of June, 1930, and prior to the filing of the bill of complaint herein, defendant, Louis Hirsch Textile Machines, Inc., has without consent of the plaintiff sold within the United States full fashioned hosiery knitting machines, leggers and footers, provided with attachments, and attachments for such machines, said machines and attachments being the same in all substantial respects as those shown in the photographs attached hereto [fol. 22] and bearing the numbers 10018, 10019, 10020, 10021, 10022, 10040, 10041, 10042, 10043, 10044, 10045.

"4. That the defendant on or about the 30th day of June, 1930, received from W. G. Stewart, attorney for Textile Machine Works, the plaintiff herein, a notice reading as follows:

June thirtieth, 1930.

"Louis Hirsch Textile Machines Inc., 47 West 34th Street, New York City.

DEAR SIRS:

Replies received to our recent notices sent on behalf of The Textile Machine Works, to users of your 'Karl Lieber-

knecht or Kalis Full Fashioned Hosiery Machines'—alleging infringement particularly of their patent No. 1,713,628, indicate your acceptance of responsibility in the matter.

"Mr. Ferdinand Thun asks us to propose to Mr. Louis Hirsch a conference with him at the Textile Machine Works, with a view to generally discussing and determining action before his departure for Europe on July 15;—that is on or about Monday July 7, if this week is inconvenient because of July 4. Counsel will be welcome if desire.

"Will you please promptly advise us, or Mr. Thun direct, as to your attitude and convenience with regard to this suggestion.

"Respectfully, —— ——.

[fol. 23] "5. That printed or photographic copies of patents, including the patent in suit, and publications, may be offered in evidence and used with the same force and effect as certified copies, subject to correction, if error shall appear; and the dates of filing appearing on patents and dates and places of publication appearing upon publications so offered may be taken as prima facie correct, but subject to correction.

"6. That translations of foreign patents may be offered in evidence and such translations accepted subject to correction, if error shall appear.

(Signed) Howson & Howson, Attorneys for Plaintiff. (Signed) Darby & Darby, Attorneys for Defendant.

Dated: October 10, 1934."

I offer in evidence, with the request that it be marked as Exhibit 2, the set of photographs referred to in this stipulation which has just been read.

(Marked Plaintiff's Exhibit 2.)

Mr. Howson: There is another stipulation here which I also wish to make part of the record. It is not long and I will read it:

STIPULATION AS TO CERTAIN EVIDENCE

"By and between counsel for the respective parties, it is stipulated and agreed:

"(1) That the printed transcript of record (two volumes), prepared by the Clerk of the Court of Appeals for the Third Circuit in the suit of Alfred Hofmann, Inc., Defendant-Appellant, vs. Textile Machine Works, Plaintiff-Appellee, No. 5312, March Term, 1934, may, without certi-
[fol. 24] fication, be offered as a physical exhibit for the purpose of showing the issues and proceedings in the said suit in the Circuit Court of Appeals, and in the same case in the United States District Court for the District of New Jersey under the title Textile Machine Works vs. Alfred Hofmann, Inc., in Equity No. 4219.

"(2) That the statements of the testimony of Sidney Mayer, Floyd E. Groff, William J. Jackson, Walter A. Stewart, Elmer R. Roth, Paul Guenther, Frank Heyde, Max Gruener, Arthur W. Mutchler, Percy Hockin, Adolph Hecker, Jacob Bock, Fred Drawert and Ferdinand Nusbaum, or any of them, as contained in said printed transcript of record, may be offered and used in evidence in this suit in pursuance of the stipulation heretofore entered into between counsel, providing for the use in this suit of the testimony given by said witnesses in the former suit, with the same force and effect as if certified copy of said testimony, in the form of question and answer as given at the trial in the District Court, were produced and offered.

"(3) That reports of the opinions of the United States District Court for the District of New Jersey, and the United States Court of Appeals for the Third Circuit, as appearing respectively in 4 Fed. Suppl., 837; and 71 Fed. (2nd), 973, may be referred to and used in evidence in this case as competent evidence of said opinions.

"(Signed) Howson & Howson, Attorneys for Plaintiff. (Signed) Darby & Darby, Attorneys for Defendant.

March 23rd, 1935."

[fol. 25] We offer in evidence as Exhibit 3 the Hofmann record referred to in the stipulation which has just been read, Volumes 1 and 2.

(Marked Plaintiff's Exhibit 3.)

Mr. Howson: It is agreed as a fact that the defendant in the former suit against Hofmann filed an application for

writ of certiorari to the Supreme Court from the decision of the decree of the Circuit Court of Appeals of the Third Circuit, which application for writ of certiorari was duly presented and refused.

CHRISTIAN F. MEYER, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Howson:

The Witness: I am 54 years old and I live at Wyomissing, Pennsylvania, 1408 Garfield Avenue; my occupation is mechanical engineer.

I am in the employ of the Textile Machine Works, one of the parties to this case. I am chief engineer. I have been in the employ of the Textile Machine Works for the last 26 years. From 1909 until 1918, I was occupied with the design and construction of full-fashioned knitting machines of the type which are described here today. In 1918 I came in charge of the entire engineering department and also of the patent matters of the Textile Machine Works.

The business of Textile Machine Works is principally the manufacture of full-fashioned knitting machines. It is a [fol. 26] very substantial concern. It has about three thousand employes. It is located at Wyomissing, just outside of Reading.

As to my experience and familiarity with letters patent relating to knitting machinery and the like, I will say that in my capacity as chief of the engineering department I had to supervise the drawings, the specifications, of the patents which were taken out by the Textile Machine Works. I took these up with our patent attorneys and followed them up as they went along, and finally had to approve them before they went to the Patent Office. I did that until 1928, when a patent attorney, Mr. Ischinger, was employed to establish a separate patent department. But even then I was in daily contact with the patent matters because we created a Patent Committee which was in charge of all patent matters pertaining to the machinery built by the Textile.

As to my technical education, I will say that I graduated from the Technical High School in Hamburg, in Germany.

I have read the patent in suit, No. 1,713,628, and I think I understand it. The title of the patent is, "Attachment for flat knitting machines." I will state what is meant in general by the term "flat knitting machines." Generally speaking, a flat knitting machine is a machine which has needles arranged in a straight row.

As to what other types of knitting machines there are besides flat knitting machines, I will say, using a general expression again, that there are circular knitting machines which are the direct opposite to the flat machines, although even there that does not hold out exactly. There are some [fol. 27] circular machines which produce a flat fabric by not completing the circular motion, but oscillating, and there are also flat machines which produce a tubular fabric, so-called Lamb machines.

Generally speaking the flat machine is one that knits the blank as a flat blank as distinguished from one which knits as a tube.

In these specifications there is also reference to a straight knitting machine. A straight knitting machine is substantially the same as a flat machine. Either expression is used in the trade.

The specification of the patent in suit, line 1, page 1, stated:

"This invention generally stated has relation to flat knitting machines for making hosiery of full-fashioned type,"

and at line 24 of page 1, the patent states:

"It is an object of my invention to provide attachments for full-fashioned knitting machines."

I will explain what is meant by hosiery of full-fashioned type.

Hosiery of full-fashioned type is hosiery which is knitted in a flat blank and in which the narrowing or the shaping of the blank takes place by the actual transfer of loops from the outer edge of the fabric towards the center of it in forming and narrowing the fabric down to the desired shape. That holds also for the foot which is shaped in the same way and in that way gives an almost perfect form to fit the human foot.

[fol. 28] I produce an illustration of the blanks to which I have been referring.

This here is a blank knit which is narrowed down so that it will be lesser width than where it started out. Up here it is usually 13 to 14 inches wide and down here it is three or four inches less, and that is done by transferring the loops, or, as it is called in the trade, narrowing, which may be seen here—small points where the loops have been laid on top of the others. (Witness indicates and illustrates.)

This is a leg blank and this is a complete stocking formed in its flat condition. Afterwards it is seamed together by special machinery which I will explain later—the foot is added to the leg.

Mr. Howson: The specimens referred to by the witness are offered in evidence as Plaintiff's Exhibits 4 and 5.

(Marked Plaintiff's Exhibits 4 and 5.)

The Witness: Those fashion marks, that I called his Honor's attention to, are known as narrowing marks. The presence of those marks indicate a full-fashioned stocking as distinguished from a stocking of some other make. That is one of the distinguishing marks of a full-fashioned stocking. This fashioning is done on a full-fashioned machine by machinery by actual transfer of loops. On some other machines, straight machines, narrowing is accomplished by a different method. But the characteristic of that full-fashioned hosiery is that the narrowing is always done by actual transfer of loops.

Referring again to the patent, the patentee says at page 1, line 81:

[fol. 29] "Fig. 1 is a view in front elevation of a portion of one type of full-fashioned knitting machine known as the 'Cotton' machine";

I will state what is meant by the reference to the "Cotton" machine.

The Cotton machine is a machine of a straight type, generally known today as the full-fashioned hosiery machine. It derives its name from the inventor, William Cotton, who had it patented in England in 1864, and the characteristics of that machine are, as I explained before, that the loops of the fabrics which are made on the machine are transferred by actual motion of the loops to adjoining needles.

Another characteristic is that they have cooperating carrier rods and consist of a number of sections—all sections making the same stocking blank at the same time and each one of these sections having one of the carriers. These carriers are mounted on long steel rods usually eight in a machine and having a number of sections from 20 up to 28, and perhaps more. Now, in a machine of 20 sections with 8 carrier rods there are 160 carriers of course and the same proportion holds for machines of other lengths and number of carrier rods. Perhaps it is proper here to mention that the Cotton machine derives its power from one source. That is the so-called cam shaft on which all the actuating cams are mounted.

In the specification on page 2, after referring to the machine shown in the drawings, the patentee says:

[fol. 30] "Such machine may be of any well known full-fashioned knitting machine type and to such my novel attachment is connected."

I will state what different types of full-fashioned knitting machines there are.

There is only one type of full-fashioned knitting machine. I think that the inventor undoubtedly meant different manufacturers when he said different types, as for instance Schubert & Salzer, Hilscher, Lieberknecht and others in Germany, and Wildman in this country.

I can not state from an examination of the drawings of the patent which make of full-fashioned machine is there described. That is very difficult. The machines appear very much alike.

By the Court:

Q. You mean that they follow the Cotton patent—the characteristics of the Cotton machine?

A. The characteristics of the Cotton machine, only the different parts having different shapes. Those parts not being in the patent, it is impossible to say which particular machine that patent was shown on. But there is no mistake that it is a Cotton full-fashioned machine.

I will explain the general construction and operation of a full-fashioned hosiery machine such as is illustrated in this Schletter patent in suit. That is, I will explain so much thereof as has a bearing on the subject matter here in suit.

In doing that, I would like to refer to a publication which was issued by the Textile Machine Works in 1920 and which gives a good idea of the general construction and operation [fol. 31] of the machine.

Mr. Howson: I offer in evidence the booklet that the witness has just referred to, as a publication of Textile Machine Works, as Exhibit 6, and Mr. Darby agrees that we can stipulate that that book was published at least as early as 1920.

Mr. Darby: Published and distributed.

Mr. Howson: Published and distributed as early as 1920.

(Marked Plaintiff's Exhibit 6.)

The Witness: I shall again refer to the stocking as shown here. It shows here the leg; under the leg it has two short extensions marked AA on page 11. These short extensions AA are known as the heel tabs. After this leg blank is made in that form these heel tabs are turned around into a straight line, giving this bag which is shown there, and which forms the heel afterwards—the round part of the heel. Along this line the stocking is then put on a so-called transfer bar of which I have here an actual bar. This is the transfer bar. There is a straight line here and as shown here it is fastened on these needles; this transfer bar is placed in the footing machine; the footing machine begins at this line, thus completing the stocking. Stockings like that are made on a machine of which we had a photograph here. That is a typical section. This particular machine being of 24 sections and 45 gauge. By the gauge of a machine is meant the number of needles per inch, or in other words, the fineness of the fabric which the machine turns out. This ma- [fol. 32] chine being 45 gauge, does not mean, however, that it has 45 needles, but the number of needles in a gauge is determined by multiplying the gauge number by two-thirds which gives in this case thirty needles. That originated in England. Two needles were cast into lead blocks and the number of such lead blocks in three English inches determined the gauge numbers. That determination has been kept until today. It is perhaps interesting to mention here that the first power knitting machine was invented by Lee, an English clergyman, and that at the time he invented his machine it was quite customary for men and women to hand-knit. At that time a good handknitter could make about a hundred loops per minute. This first machine could make

200 and the second machine 400; a machine like this running at 65 revolutions per minute can make a little over 600,000 loops per minute. Formerly stockings were almost exclusively knitted from cotton and it is only within the last twenty years that the use of silk has been gradually on the increase, until today almost all full-fashioned stockings are made from silk. There are few exceptions to the rule. The silk is brought to the machine in the form of cones which are wound by special winding machines, and put in the rear as shown by the next picture.

Mr. Howson: I will state that the illustration referred to by the witness showing three blanks is the same as that found on page 11 of Plaintiff's Exhibit 6.

Mr. Howson: I offer in evidence the illustration of the [fol. 33] knitting machine itself referred to by the witness as Plaintiff's Exhibit 7.

(Marked Plaintiff's Exhibit 7.)

Q. In view of that, I will ask you, Mr. Witness, if you have occasion to refer to any of these drawings which are simply enlargements of views shown in your circular, you will state that, so that the record will show exactly what you are referring to.

By the Court:

Q. That is the same as on page 12, isn't it?

A. That is correct. That is an enlargement of the illustration on page 12. This drawing is an enlargement of the drawing on page 12 of the publication, Plaintiff's Exhibit 6. The silk cones are put on the rear of the machine in so-called humidifying boxes which are necessary to keep the flexibility of the silk; then they are led over a number of guards and tension devices into the so-called carriers which are marked H on this drawing. The completed fabric is taken off the needles by a draw-off roller P, which in turn is operated by weights R, which are connected to the take-off roller by a rope which exerts the necessary pull to take the fabric off the needles. That pull has to be altered according to certain conditions which will be referred to later.

These carriers H are shown on the next drawing, this drawing being an enlargement of Figs. 5, 6 and 7 in the publication, Plaintiff's Exhibit 6, on pages 14, 15 and 16 respectively.

This black line here shows the thread running from the devices which I have just described into the carrier H, and [fol. 34] being fed by the carrier over the entire width, or part of the width, as the occasion may require, of a section. The first operation in forming the loops which the machine produces is to lay the thread in front of the needle as shown by Fig. 5.

We have here a model made which will make it a little clearer than the drawing might. Now, these are the needles; the thread is laid right on the noses of these steel slides which are known as sinkers and the dividers. The sinkers—jack sinkers they are called—are moved one by one by a certain motion which passes along the rear of the machine in this way and each second slide advances, so that a loop is formed in alternate spaces between needles. In here (indicating) there is no loop formed for the time being; the thread, in order to do that, is robbed from the carrier and when this has taken place over the entire length of the machine, the so-called dividers advance simultaneously and form a loop for each needle; that is, there is a complete row of loops now. When the loops are in this formation, the needles are going down against the so-called presser edge, which I will explain a little better later and come down through the old loops and are drawn up like that, so that the new loop is drawn through the old one. I can explain that again after we have looked at the drawings perhaps.

This is the shape of the needle. It is very much enlarged.

The Court: What is the normal size of the needle in the machine?

The Witness: I have an actual needle here. This is the [fol. 35] actual size. In a machine of this type there are nearly ten thousand of these needles. This is the shape of the needle and the thread is led here and the needle comes down, the thread slips under here and after that has happened this part of the needle is pressed against the presser edge and closes, so that it is like a sewing needle, when it continues down the old fabric will go up the shank of the needle; it draws the loop through it and comes up again after the new row of loops is completed. The drawing Fig. 5 shows the thread led in front of the needles. Fig. 6 shows the sinkers A have advanced to form a loop between every alternate needle, one by one.

Then Fig. 7 shows how the dividers advance simultaneously to form a loop around every needle. In Fig. 8 right in the front, right near the A on the right hand side it shows the needle beards are pressed against the presser edge closing them, making them in appearance and action like a sewing needle. In Fig. 9 it shows how the loops which are now hanging in the beards of the needles all the way up, that is the new loops, while the old loops are closing the needles. The old loops have been entered by the beards and are closing them now and the new loops are hanging up here. Then the needles are going down and draw the new loops through the old ones in that form as shown in Fig. 10, thus completing a new row of loops.

Mr. Howson: I will just state for the record that Figs. [fol. 36] 5, 6, 7, 8, 9 and 10 referred to by the witness are the figures from Plaintiff's Exhibit 6, and I offer in evidence the model referred to by the witness during the course of his answer as Exhibit 8.

(Marked Plaintiff's Exhibit 8.)

Mr. Howson: I also offer the illustrative board which shows the actual size of the needles, and so on.

(Marked Plaintiff's Exhibit 9.)

The Witness: The mechanism to carry out all of these different motions and movements which I have just described is shown by this drawing which is an enlargement of the illustration No. 24 in the publication Exhibit 6.

This is quite a complicated array of levers, cams, and so on, which cause these different parts to make the motions which are required to do the work. I don't think it necessary to go into a very detailed description of this. I will just say that the green and red levers as well as cams which are marked here, in their combined action, control the motion of the needle bar, whereas the blue in the front as well as in the rear control the motion of what is called the catch bar, which in turn moves the sinkers and dividers forward and backward as may be necessary.

The main thing I want to call attention to in showing this drawing is the fact that all these movements are operated from the cam shaft, the cam shaft being a long shaft running through the entire length of the machine and mounted somewhat in the lower part of the machine and not only for this

[fol. 37] motion but for any other one which may be brought to your Honor's attention during this trial, the motion is derived which drives all parts of the machine, from there.

Now then we come to the carrier motion of which I have a drawing here. This drawing is not in the publication Plaintiff's Exhibit 6. We made it later in order to explain the carrier motion. The carrier motion is, as the name implies, there to give the reciprocating motion to the carriers, to lay the thread for the respective sections of the machine. Here is such an actual carrier where the thread comes from the top, through the various guide holes, through a little tube which is shown in the lower end and from there is distributed along the sections of the machine. These carriers are shown marked as H in these drawings, being these blue extensions which are coming from the carrier rods. As I said before, each section has a carrier for each carrier rod. In other words, where there are eight carrier rods we have eight carriers in each section lying back of each other so that several of them can lay the thread at the same time over that section. Reciprocating motion is given to these carriers by so-called friction boxes; these green parts which are indiciated as E in the drawing. I also have a friction box here. This box is mounted on a rod—loosely mounted so that it can easily be pushed backward and forward. It has two shoes on either side, on the top and bottom against this rod here, and on either side also a spring; then it has a small cam lever here. When you close that the springs are compressed, friction contact is established to the rod blocks and the friction box is locked against that [fol. 38] rod, not immovably so but only to the extent that the friction contact holds it; the friction box is provided with a lever which is shown here marked in the drawings as F.

The Court: N is evidently the rod.

The Witness: Yes, N is the rod. The lever is shown by the letter F. Now, this friction box and this rod N are located in such a position in regard to the carrier rods, which are indicated here in cross-section with the carrier rods lying side by side in slots C which are provided for that purpose, and this friction box is located right in this position in such a way that this lever F can be pushed over any one of the rods here; each one of them is provided with what we call a dog, these little things here, and this little extension here in front of the lever fits into these

cut-outs, so the lever can be connected with any of the carrier rods.

A reciprocating motion is given to this rod N extending always over the full length of the sections. It can not be limited in any way. When one of these friction boxes is connected to the carrier rods and the frictional contact is put on, then this friction box goes along with the rod and takes the carrier rod along, and of course, the carrier, however, does not make the full width of the travel. It is limited. It sometimes makes only a very short part of the travel and when that happens the end or center part of the carrier rod is held and the friction box simply slides [fol. 39] through against the frictional contact, so that this rod N can complete its movement while the carrier rod is held by some stop, either in the middle or at the end of the machine. That is another advantage, that when the friction box is drawn through there is a certain resistance, I mean a certain pressure against the carrier rod and against the stop. That is quite essential and quite important, because these carrier rods being 30 or 40 feet long have quite some weight and quite some velocity and unless there would be some provision like that or some other provision, it would rebound when the stroke is stopped and by suddenly cutting off the reciprocating motion. There are, of course, a number of these friction boxes provided, sometimes several for one carrier rod, sometimes not so many, but a sufficient number of friction boxes so as to enable the operator to operate one or more carrier rods in conjunction. It may be that possibly one of these carrier rods are stopped in a certain position and another in another position, but that can be done regardless of the position of the stops which limit the stroke of the carrier rod. This is the stop in yellow, marked G, known as the end stop which are the regular stops in the machine limiting the complete or full stroke of the carrier rod across the width of the fabric being made at that time. For a partial movement of carrier rod there are other stops—various other stops which will be described later when we come to them.

Mr. Howson: I offer in evidence the drawing which has just been referred to by the witness—photostat of the drawing, as Plaintiff's Exhibit 10.

(Marked Plaintiff's Exhibit 10.)

[fol. 40] The Witness: Now, the next thing to be explained is the so-called Coulier motion. That is the motion which gives the reciprocating motion to the rod N from which the friction box and carrier rods are operated.

I have here an enlarged drawing of Fig. 22 in the publication Plaintiff's Exhibit 6 and enlarged figures or cut of Fig. 21 in the publication (Plaintiff's Exhibit 6) showing the same thing.

Now this rod N to which I have referred in the carrier motion appears again in the enlargement Fig. 21 and is also marked N there. It is rigidly fastened into a bracket K which slides on a bar running the entire length of the machine. A long lever H is connected to this sliding bracket by means of a joint and is itself driven by means of a so-called pitman, this pitman being a horizontal connecting link, the other side of which hangs in another swinging arm G and its supporting bearing N.

This pitman F is provided with two cam rollers E between which a cam D rotates. The rotation of that cam D gives a reciprocating motion to this pitman which transmits it by means of lever H to the rod N, giving this rod the reciprocating motion which it must have to drive the carrier rods. This cam D is shown here. This is looking at the machine from the rear, drawing 21, while the enlargement of 22 shows the machine from the front. In the rear is the cam D which gives a reciprocating motion and the axle coming to the front of the machine is provided with a bevel gear C. That bevel gear C in turn is rotated [fol. 41] by a bevel gear pinion that is intermeshing at right angles and the pinion B is loosely mounted upon the cam shaft, which as I explained it, runs through the entire length of the machine in either direction. The ratio between the bevel gear pinion and the bevel gear C is 1 to 2, so that with a revolution of the cam shaft, this Coulier cam giving a reciprocating motion is making a half turn, which means one course in one direction. Now it becomes necessary for this entire assemblage here, carrier rods, friction rods and all parts having a reciprocating motion, to stop dead when the narrowing takes place, because the narrowing points when they come down to transfer the loops would interfere with the carriers; therefore this entire machine has to be stopped. For that purpose there is a clutch V which is rigidly fastened to the camshaft and which is nor-

mally engaged with this bevel gear pinon B. When the machine narrows, the entire camshaft shifts to the right. That is caused by another motion which we will come to later, thereby disengaging this clutch from this loosely-mounted pinion B. The clutch keeps on turning, this pinion being disengaged would make a partial turn and would come to standstill due to the friction of the machine. It must not produce a moving of the carriers because that can not be, therefore a brake is provided. When the camshaft shifts to the right it lifts the roller R, which by means of a cam P rotates with the camshaft. Lifting the arm, swings levers S and T which are made in the form of a bell crank lever so that the upper end of lever T swings to the left. In doing so, it pulls a brake band U which is laid around the periphery of this large bevel gear and brings that lever gear to an immediate stop. [fol. 42] After one revolution has been completed, the camshaft, by this other motion, shifts back to its original position, the brake releases, the pinion B is engaged again, and the Coulier motion takes up its normal function which ceased during the narrowing operation.

Now we come to the narrowing itself. This shows the function of the narrowing points which are transferring a loop from the outer edge of the fabric toward the center of the fabric. I have here also a very much enlarged narrowing point. The actual size is also on this card marked "narrowing point" right here.

The function of this narrowing point is very simple. It simply covers the beard of the needle so that the beard is embedded like this; then they go down together and enter this loop and this comes out and somewhat elevates the loop, the point carrying it over and deposits it again. When it is in that position again, the sinkers and dividers, which the these little slide pieces in the head, prevent it moving with the narrowing point, the narrowing point goes up again above the edge of the fabric leaving the loops transferred from the edge of it by two needles. The motion to do this, or rather the points, are illustrated here by Figs. 11, 12 and 13 of this enlarged drawing of the same figures in the publication Exhibits 6, 11, 12 and 13, on page 20. This shows very clearly how the needle beard is embodied in the grooves, the groove being the unshaded portion; it shows how it has lifted the loop off the needle and how it

is on its way toward the center of the fabric. Here it shows how it has deposited it on the second or next needle from [fol. 43] the edge and how the sinkers and dividers have advanced to prevent the going up of the loops with the narrowing points as they rise to normal position.

By the Court:

Q. Why, when that narrowing point goes up does the thread stick to it; why doesn't it slip off?

A. No, it doesn't.

Q. Why doesn't it?

A. On account of adhesion.

Q. Now friction?

A. No, that is all that holds it, adhesion.

The Court: All right.

The Witness (continuing): The parts which are necessary to accomplish this and give movement to the narrowing points are shown on this enlarged drawing of illustration No. 26 in the publication Exhibit 6. They consist of a number of hanging arms B as shown here and shaft E hanging in front or mounted in front of these hanging arms and called E on which the various narrowing fingers, as we call them, are mounted.

In order to show that to your Honor I will have to show you a small model which we made of a machine to illustrate this particular thing, not only this, but the attachment in suit.

I say that to these rods which run along the entire length of the machine, all of them on the swinging arms, are fastened to the so-called narrowing fingers and these are indicated there (indicating). This is an actual narrowing finger. On this model they are represented by these little [fol. 44] brass pieces. That means, just as your Honor sees it here, this corresponds to that down there; here are a number of these narrowing points because in transferring the loops, they don't actually take two loops at each time, but they take quite a number of them, usually 17 or 18 off the fabric, move up and two needles over to deposit them again. That has been done so these narrowing marks which your Honor observes don't come directly to the edge, because in former times when these stockings were sewed by hand these narrowing marks were quite a trouble for a

person sewing stockings, not to miss it with the needle, so the narrowing marks are now at a considerable distance from the edge. And that distance is equal to the number of these points.

The narrowing motion which gives the motion to these narrowing parts for the transfer of loops I want to show on this little model here. These are the hanging arms B in the drawing. This is the shaft E which runs all along the machine supported by these hanging arms. Then under shaft E are these little brass holders with the narrowing points in them and the machine, when it comes to the narrowing that is caused by the shifting of the camshaft to the right, as I mentioned before (illustrating with model), moves in this fashion and the shifting is done by the so-called chain motion which will call for explanation somewhat later.

Now you will observe the camshaft shifts to the right whereby all these rollers which are in here would be hanging free in the air unless there was some provision made to support them during the narrowing motion. Therefore all these cams are provided with extra cams on the side which [fol. 45] either support those parts of the machine that are not participating in the narrowing motion to keep them up, or change over from a round cam which is not working during the active knitting to the narrowing cam. That is a cam which performs the motions of this particular narrowing operation. Now your Honor will notice how these swinging arms come down (illustrating with model). Now, they are in the low position, which is the position when these narrowing points engage with the needles, then they lift the loops off and come up again. Now at that time a motion, which I will also explain, moves these points towards each other. This one on the upper rod and one on the lower rod, and then they deposit them again and come up again and they are free, and the camshaft shifts back again. So that shows it is very essential that any one of those cams must have a so-called narrowing cam there to transfer it from a state of immobility to a state of motion as in these cams which move back down (indicating), or those other rollers which work during the regular working of the machine where it is just the opposite. They are moved off their regular cam onto a cam which keeps them, not moving, but all of them must have a narrowing cam.

Mr. Howson: I would like to have the model to which the witness has been referring marked for identification Plaintiff's Exhibit 11.

(Marked Plaintiff's Exhibit 11 for identification.)

Now on this drawing we have that illustrated very clearly. [fol. 46] The motion to these swinging arms is given by these vertical arms C and the cam lever A to which they are connected here (indicating on drawing). Here is the cam roller. While the machine is working in regular knitting this cam roller runs on the round part of this cam which I would call the normal knitting cam.

Now if the camshaft shifts over to the right then this roller comes on this active cam and when the cam revolves then of course the roller is permitted to go down allowing these swinging arms to perform their function.

Now the up and down movement is clearly explained that way. The motion which brings the narrowing points into contact, and out of contact with the needles, is merely obtained by the arc which this swinging arm describes and which is so arranged that the location of the fulcrum gives the proper movement for the narrowing point. Sometimes it is necessary that these entire points are swung out of the way for better observation or some other reason. That is done by a hand lever which is placed in the front of the machine here and is marked F on this drawing. By a connecting rod K it is connected to two arms G and H. When it is necessary to lift the narrowing motion out of the way this hand lever is elevated thereby swinging these arms from the left to the right and bringing a roller which is fastened to the extreme end of lever H under a wedge extension of the cam, lever A thereby lifting the cam lever up and with it the entire narrowing motion.

We come now to the motion which causes the camshaft to shift to the left or right as it becomes necessary due to the narrowing motion. This device is known in the art as [fol. 47] the chain motion because it is controlled by a pattern chain which is shown here in the figure. Both the figure as well as the drawing are enlarged views of illustrations Nos. 30, 31 and 29 in the publication, Exhibit G.

This motion is located at the front of the machine and consists of a chain ratchet wheel into which a pawl marked S is operating, turning it in a step by step movement so

as to advance the chain link by link. On this chain are certain buttons which are marked R and which pass under a lever H which is located here (indicating on drawing). It is shown here on the drawing. As a button comes under an extension on this lever it lifts that lever up. It is normally down, and when the button comes under it it lifts it up thereby bringing another lever M into action to swing to the left. In doing so the lower end of this lever which has an extension swings away from a support of a swinging lever J, this lever (indicating) and that lever J is always pulled toward the center of the camshaft by a spring, but is held from going in that direction (indicating) by a flat extension, and this flat extension is arrested by this lever which I just described. Now when that lever swings to the left this lever J is released and falls inward thereby bringing this roller C into the path of a side-faced cam.

Now this lever J (indicating) is rigid. It can not move, but the camshaft (indicating) is sliding and loose in its bearings and therefore when piece D comes into the path of the roller the camshaft will be shifted to the right.

At the completion of one revolution there is a little cam piece E on the side of this cam and that swings around [fol. 48] and it presses this lever out again and the arresting lever falls into the holder again because the button in the meantime has gone from underneath the lever and now the opposite movement takes place, because the camshaft on this side has another side-faced cam which shifts the camshaft back again. In other words, this motion, whenever a narrowing button raises this part this lever J is free to fall. After one revolution, it is shifted back again to the left and held by the arresting lever until another button comes to repeat the same performance. Sometimes it is necessary to stop the chain motion altogether. That is when the narrowing is completed. In that case there is another row of buttons on the chain which comes under a little extension which is not marked here, but an extension which is protruding from the pawl. As that button comes under the pawl, the pawl is lifted out of its ratchet and merely moves without acting on the ratchet. When the knitter wants to set this motion into operation again, he has a foot pedal which is here (indicating) and which is also provided with a pawl V. He simply puts his foot on here and that brings this down and that brings this lever

in this direction and the pawl engages one of these teeth pulling the ratchet from underneath this button here, allowing the pawl to get into action again to continue the motion.

I think that explains the chain motion which shifts the cam for the narrowing operations.

We come then to the narrowing motion which is controlling the lateral movement of the carrier rods as well as the narrowing rods. These two exhibits (referring to [fol. 49] additional drawings) are enlarged copies of the cut shown by Fig. 27 on page 40 and by Fig. 28 on page 42 of the publication Exhibit 6.

These narrowing heads are located on each end of the machine. One of them is shown here in the little model Exhibit 11. A corresponding one is on the other end of the machine. This attachment consists of a base plate upon which are mounted two spindles L and K. L is the spindle which controls the movement of the carrier rod, while K is the spindle which controls the corresponding movement of the narrowing rods. Spindle L is provided with a ratchet H. Spindle K is provided with two ratchet wheels, G and I, the teeth of which are cut in the opposite directions. I must also call attention to the fact that the ratchet wheel for the carrier rods has only half as many teeth as the ratchet wheel for the narrowing rods. I will explain later why that is.

Both of them are provided with an arresting disc which is marked Y for each spindle. This disc has little cutouts, V-shaped cutouts around its periphery into which are fitted little plungers which are shown here and which are operated by a hand lever marked Z. By means of that hand lever that plunger can be lifted out of contact with these little V-shaped cutouts in the disc Y. These devices are there merely for safety. That is when these ratchets are in their correct position the wedge-shaped edge of this plunger, will enter the V-shaped cutout, and hold them there in correct position and also against accidental turning. It will take some power to overcome the resistance of that, and it is not so easily possible to turn the spindle by accident.

[fol. 50] To move these ratchet wheels H and G two pawls are provided which are marked F and E. F is here (indicating) but E is not visible on the photograph. These

pawls always work together. In fact they are connected by a steel rod, down here (indicating), so that it would be impossible to work one of them independent of the other. They must always work together.

These two pawls are fastened to a forklike lever C down here so that the up and down movement of this lever C will operate these two pawls turning both of these spindles in one direction and taking one tooth here and two teeth here. The lower end of this lever C is fastened to a cam, lever B which is provided with a roller A. Now this roller A is running normally on a round cam and when the camshaft shifts it goes onto a narrowing cam, an active cam, in a manner similar to the cam arrangement for the narrowing motion. When that happens this fork goes down and up again, and moves both spindles for the distance of one or two teeth in case of the narrowing spindles. That means that for the narrowing spindles these two nuts will move toward each other and for the carrier spindle this nut, in both of them, for the distance of two needles. These teeth are arranged in such a way that a movement of one of them corresponds to an exact movement of the carrier rods and narrowing rods to the extent of two needles, because the narrowing always takes place over a distance of two needles on account of certain peculiarities of the sinkers and dividers which really have nothing to do with this matter.

Sometimes it occurs that in the heel of the stocking, for [fol. 51] instance, the narrowing, although it is two needles, has to be moved back one needle in order to get a line of narrowing marks which is somewhat different from the ordinary line.

If I can show this to your Honor: (illustrating with Exhibit 5). Normally these narrowing marks would run parallel to the outer edge. That is there would be taken a certain number off here, but always moving it, and this would be parallel to the outer edge. But it is not so here. Your Honor will see the distance here is larger than when it is down here (indicating on exhibit). That is done in order to get the proper shape, and is done in such a way that the narrowing points take these loops and move them in two needles, and then the narrowing points move back again one needle, that means the next time they would take

one loop less and in that way the distance here would always get smaller.

Mr. Howson: Please note that the witness has been referring the Court to Exhibit 5.

The Witness (continuing): That is done by a special little regulating device which is at the extreme left hand of this drawing, Fig. 28 of the publication, Exhibit 6, which is provided with a little bar here on which are so-called regulating pieces marked 8. A lever No. 5 is provided with an extension which can run on top of these regulating pieces or on top of this bar 7. That means it can make a motion in that direction (illustrating). It is caused to do so by a spring 3 which is always tending to move a rod 1 to the [fol. 52] right, but is prevented from doing so by a collar 4 which holds the lever 5. A support, pawl D, is provided on lever C in such a way that when the collar 4 is turned over to the right, as it will do by the swinging of lever 5 it releases another collar 2 and permits the pawl D to swing inward. If that is done, the end of pawl D will engage the teeth of ratchet G on its downward movement but will only take one of these teeth instead of two, the movement being so adjusted.

In other words, when this lever goes up this pawl here will move forward in a clockwise direction two teeth, while on the way down this pawl D will turn in the opposite direction for one tooth.

It is of course understood that that thing is the only thing that it can do. It can go forward two and one back for this very purpose which I just explained to your Honor. Nothing else is intended and nothing else can be done with it and it must move while the narrowing motion takes place. It can not be moved at any other time.

This movement of the two needles is also taking place in the carrier rod because when the width of the stocking is reduced by four needles the carrier rod must follow that reduction in order to get a clean selvage which a full-fashioned stocking must have and which can not be produced in any other way, or not as perfectly produced in any other way as by the method which I have just explained.

[fol. 53] Perhaps I can show on this little model, Exhibit 11, how that is done, if your Honor will kindly come down here.

These spindles turn this way and in that way the stroke of the carrier rod is reduced. The carrier rod goes over this section like this (illustrating) and the end of its strikes this end, these little end stops. When that is moved in, naturally the stroke of this carrier rod is reduced by two needles and since we have one on each side, the total reduction is four needles, and that is why this here makes exactly the same movement, also for two needles, so that the narrowing and the carrying motion go, so to speak, hand in hand; I may say absolutely the same length as the stroke of the carrier.

This entire motion which we know as the narrowing head is, of course, a unit which is a standard part of the machine and which absolutely belongs together. You can not separate it or do anything else with it but use it for this very purpose which I have explained. Also this backward motion, which is not shown on here, but which is shown in that drawing can only take place in the one way which I have described; that is, two-one; two-one, and for the purpose—we have not shown that here but that is the way it goes; two needles forward and one back, by bringing these little points one needle out and taking so many loops less, so that the line of narrowing instead of running parallel to the fabric will run at an angle to it.

By Mr. Howson:

Q. Have you finished with the narrowing, Mr. Meyer?

A. Yes, I have finished with the narrowing.

[fol. 54] Q. When the narrowing is completed and you are through with the narrowing attachment by that time what do you do with it? How is it returned to its original position?

A. Oh, it is racked back by hand. There are cranks provided here, K and L, and the operator must rack it back to its original position by hand.

Now, then, here is an illustration which shows very clearly how the narrowing is done. This is a very enlarged loop formation of a stocking and it shows you two loops are taken up and moved over and then at that width the stocking runs a few courses again and the narrowing is repeated and so on until the width of the stocking is reduced from this width to that one (exhibiting board to the Court).

The Court: I see it.

Mr. Howson: I will offer this board that the witness has just referred to in evidence to be marked Plaintiff's Exhibit 12.

(Marked Plaintiff's Exhibit 12.)

The Witness: Now we have heard quite a bit about split knitting by which is understood the piece of fabric is interknitted of two strips of fabric of a different material or different color—anyway not the same thing. And in connecting two or three pieces of a different material in that way there are two possibilities of doing so; one is what we call the open-split or "crazy-split" or "crow-foot split,"—there are quite a number of different names for it, and another is what is known as the closed split. Now, the closed [fol. 55] split is nothing else but that the two sections of this particular material overrun each other at the joint. That is, let us say it would be black and white. The black material would run two needles into the white section and the white material would run two needles into the black section, so to speak, overlap each other and then being interknitted together. I have here a board with a loop formation which shows that. Here you see is the number of needles, in this particular case four needles. You see four needles of the white material come in here and four needles of the yellow material coming the other way and lying exactly on top of each other—all of them.

Mr. Darby: Is that what they call a "four needle lap"?

The Witness: That is correct; a four needle split.

Mr. Howson: I will offer the board just referred to by the witness in evidence as Plaintiff's Exhibit 13.

(Marked Plaintiff's Exhibit 13.)

The Witness (continuing): When the material is a little heavy and these four loops lie on top of each other, it gives rather a heavy joint or seam there and therefore sometimes an open split is made in which the loops are interknitted somewhat differently; that is, they overlap to a certain extent and then they are held in that position and when the needles are in lowest position they shift to different needles —I am speaking now of this particular arrangement—a form of floating loop on the front side of the needles. The [fol. 56] effect is practically the same, but the seam is not quite as heavy as a closed split.

Here is the same arrangement in an open split (exhibiting another board). Here are these floating loops. They are not laying on top of each other but two of them are always connected by a longer loop, so to speak, a floating loop thereby reducing this extreme thickness and having a somewhat less visible connection.

Mr. Darby: Is that what they call a "herringbone split"?

The Witness: Some call it a herringbone split.

Mr. Howson: We offer the last board referred to by the witness as Plaintiff's Exhibit 14.

(Marked Exhibit 14.)

The Witness: Formerly the open split was used quite frequently but today it is practically out of use. There are various reasons for that. One of them is, it is rather difficult to get this floating loop correct especially on a high speed machine. In manufacturing this particular split many more seconds would come. That means the stocking is not perfect and the production will have to be slowed down in order to get this particular form of split. To make such an open split, however, there is a special attachment which is known in the industry for many, many years as the "split-sole attachment." The name came from the fact that this split was used in the foot, that means the instep of the stocking, say, was made of silk and the sole, which would be the side portions, would be made of cotton, and since [fol. 57] that split the sole into sections, this attachment was used to do that work and was known as the "split sole" attachment, and is still so called today.

In this split sole attachment we have here a bracket with a lever E, this lever being fulcrumed on that bracket in such a way that the lever E which is located directly over the upper line of the carrier rods can swing up and down as this outer point of the lever is moved by this rod B. That is when that pulls down this lever will come up and when it goes up this lever will swing down. This rod B is connected to a cam lever C which is operated by a cam M as shown by this drawing. The lever E up here has a little cutout which is marked a-b on this fragmentary portion of lever A shown on the upper left of this drawing.

Now the abutment on the carrier rod which is located in such a way that it strikes against this lever A, this lever

A being located somewhere in the machine—it is immaterial where,—it strikes against that and is held there—this upper part here below that strong black line where A is marked is cut out—now the carrier abutments strike above that line against the full width of the lever A. Then when the needles are in lowest position this cam pulls the rod B down, lifts the lever and permits the abutment to slide into this cutout for the width of two needles thereby making this floating loop which I have just shown in that fabric. The cutout is shown on this little model (Plaintiff's Exhibit 11 for identification) here and I believe I can show it there. Your Honor will see this is moved against the lever there like [fol. 58] that (illustrating) and held there until the needles are in the lowest position and then this lever is moving up like that and this is sliding into that cutout moving two needles ahead. It is moving against here or the other side here (indicating) and it is held there until the needles are in their lowest position and then this lever moves up and it is sliding in and laying this floating loop.

To make it clear on the record and avoid confusion, the stops on the model that I have referred to are the stops of the attachments of the patent in suit and not the split-sole stops of the patent I am describing at the present time. I just use that as an illustration.

Mr. Darby: There is no question about their being the same, is there?

Mr. Howson: Oh, no, and I did not want him to say that they were the same as the split sole stop as are on that model.

The Witness: Sometimes it is desirable to use the same stops also for the closed split. Now in the closed split it would not be necessary to have this oscillating motion or lifting motion of the lever. In fact it should not be there. For that purpose the lever C is provided with two levers H and F on its extreme outer end, and when it is desired to have this lever at rest in order to use it for a closed split or for any other purpose, this long lever H is listed and this arc portion is laid over the shaft provided for that purpose. In that way the roller is lifted away from the cam [fol. 59] and taken out of the action of this cam. In other words, this thing will simply be at rest and can be used in that position for other purposes.

Sometimes it is also necessary to lift this lever M entirely out of the way of the abutment. For instance, when that particular rod which is now limited by this stop there is supposed to be used for the entire width of the stroke. Then the shorter lever here, F, is lifting this lever higher yet, and in other words it is lifting the lever E so high that it comes out of the way of the abutment. In that way this split sole attachment can be used for any one of those functions and has been so long as—well, as long as I know it, for about 26 years— always. It is arranged on all machines.

Mr. Howson: Please note on the record that the drawing to which the witness has been referring in his description of the split sole attachment is Fig. 35 of publication Exhibit 6.

The Witness: Now turning to the patent in suit on page 1 of the specification, line 24 I find the following:

"It is an object of my invention to provide an attachment for full-fashioned knitting machines whereby yarn guides can be accurately controlled to lay a yarn over a distance less than the full length of a course being knitted, as for reinforcing or for so-called split seam work wherein sections of fabric are connected by suture seams."

[fol. 60] The split seam work there referred to, as I understand it, is the same split seam work that I have just been describing to the Court.

I will now state what is meant by reinforcing.

Reinforcing in a general sense is the addition of a thread to the body of the fabric in order to reinforce or strengthen it. There are two kinds of reinforcing. Both are reinforcing but one is called splicing and the other is called plating. That is, in the art splicing is understood to be a reinforcing with the additional thread regardless of the relative position of those two threads. It is simply added to the fabric and it may be of the same color so as to put additional strength in that portion f the fabric; whereas in plating the bottom of the fabric, that is the fabric itself, is made by one carrier and the carrier which puts the additional thread in the portion to be reinforced is in such a juxtaposition to the other carrier that it lays the thread exactly on top of the original thread. In other words, it plates it on top somewhat like the plating of a metal surface by another metal.

In the patent, line 27, on page 2 there is a reference to reinforcing for zig-zag lines inclined to the wales and courses of the web. I will make it a matter of record as to what is a wale and what is a course. The courses of a stocking are the lines of loops which are running horizontally when the stocking is worn. That is, they run in a horizontal position from the selvage of the stocking to the other selvage, and the wales are the lines of interconnecting loops running at right angles to that, vertically. I will now explain the construction and operation of the attachment shown and described in [fol. 61] the patent in suit having particular reference to the combination of parts referred to in the claims in suit.

Mr. Darby: Might I record at this time my objection to the use of this perspective view, because it does not purport to be a copy of any drawing of the patent in suit, and we attack it on the ground that there has been added thereto something for which there is no justification either in the specifications or drawings. With that understanding I have no objection to the witness using it.

The Court: Very well.

The Witness: The Schletter attachment as is expressed in his specification was designed to control the stroke of certain carrier rods which are not running over the entire width of the fabric in cooperation with the other carrier rods which are so doing at the same time. The attachment consists of a base upon which are mounted bearings marked 12 in the patent drawing and in which bearings is located a spindle, reversely-threaded spindle 11, which is marked in purple in the perspective drawing here, and in the patent drawing itself—the enlarged copies of the patent drawing.

Mr. Howson: This perspective drawing referred to by the witness we will ask that it be marked Plaintiff's Exhibit 15 for identification.

(Marked Plaintiff's Exhibit 15 for identification.)

[fol. 62] The Witness (continuing): Two units which are colored red in all three of these exhibits and marked 9, are mounted upon this reversely-threaded spindle in such a way that the turning of the spindle in clockwise direction will move them into one direction towards each other, while turned in an opposite direction will move them away from each other.

Mr. Darby: Might I object just a moment, Mr. Meyer?

The Witness: Certainly.

Mr. Darby: To likewise record in the record at this time that this perspective drawing that the witness is referring to was not in the record in the New Jersey case. It was used in counsel for plaintiff's briefs in the Jersey case. I am afraid my previous statement might have caused some confusion. I therefore make this statement that it was created after the trial in the other case and it was not used in the other trial at all. That is correct, isn't it?

Mr. Howson: Yes.

The Witness: The outward extension of this spindle 11 is provided with two ratchets such as 21 and 22, the teeth of which are cut in an opposite direction.

It is also provided with one of those arresting discs which I have explained in connection with the narrowing machine, and it is here for exactly the same purpose, that is to prevent accidental turning and to get in the correct position.

Two pawls, 25 and 26, are arranged in such a way that one [fol. 63] of them turns the spindle 11 clockwise and the other one counter clockwise. These pawls are connected to two cam levers 29 and 29-A. These numbers on Exhibit 15 for identification correspond to the numbers on the enlarged copies of the patent in suit.

Levers 29 and 29-A carry two rollers 30 and 31 respectively. These rollers move, shifted on their stubs in a longitudinal direction, by shifting levers 40 and 41 which engage the hub of these rollers in such a way that they may shift them if they themselves are moving in either direction. These rollers are normally working on round cams the same as all the other motions of the machine and they bring these two levers and pawls into action when they are shifted on an active cam which is marked 35-A. That is done by a shifting rod 42 which is mounted in front of the machine. This shifting rod is normally pulling at any time towards the left by means of a spring which is provided for that purpose and is marked 43. That spring always pulls that shifting rod in that direction. The shifting rod cannot go in that direction because it is prevented from doing it by an arresting lever 59 which is shown here, and which is between one of the supporting bearings of rod 42 and the collar fastened on that. In trying to go in this direction, the rod comes with

its collar against this arresting lever and is prevented from doing so. The upper end of this arresting lever is fastened to a lever 56 which is mounted on a front bearing of the machine in such a way that an extension of the lower side of this lever 56 is directly over chain 50 to which is given a step by step movement by any well known pawling ar- [fol. 64] rangement which is not shown. On that chain 50 are buttons 55. As soon as one of these buttons comes under the extension of the lower side of lever 56, it lifts this lever 56 and with it the arresting block 59, thereby permitting this collar to follow the pull or spring 43 and go to the left, and with it of course the entire shifting rod. When that shifting rod goes to the left, it takes with it these two rollers —these rollers 31 and 30 are shifted from their inactive cam 35 to the active cam 35-A. When that takes place these two levers 29 and 29-A are given an oscillating movement, which in turn operates the pawls 25 and 26 for the motion of these ratchets. After one revolution is completed, the shifting rod 42 is pressed to the right again by a bell crank lever, which is intended to shift rod 44 at the extreme right side of Exhibit 15 for identification.

By the Court:

Q. Is that the right side?

A. Right here, the right side of the exhibit.

Q. Oh, I see what you mean.

A. (Continuing.) This bell crank lever is given an oscillating motion by a cam 45, and a cam lever having a roller working on this cam 45. The oscillating motion given to that lever gives a swinging motion to the vertical end of bell crank lever 44. This swinging motion forces rod 43 back to the right and since the button has been removed from the extension of lever 56, this arresting lever can fall in again and hold the shifting rod in its original inactive position. By "inactive position" I mean it leaves the rollers back to the inactive cam, and the pawling motion ceases. So [fol. 65] it is quite obvious that the arrangements of these buttons 55 in that chain constitute what Mr. Howson in his opening called a timing movement. That is, any time when one of those buttons lifts this arresting lever a pawling motion would take place. In order to select the way it is to operate, that is either to the right or to the left, another chain is provided in the rear of the machine. This chain is

called 70 and the buttons on that chain 72. There is also a pawl 71 which gives a pawling motion to this ratchet and its chain. These buttons pass underneath the extension of a lever 73 and lift that lever around its fulcrum whenever a button comes under it. The outer end of that lever 73 is provided with wires 74 and 75 in such a way that while a button is underneath, one of the pawls is lifted out and the other one is permitted to fall in, and when the button passes from underneath the lever, the reverse takes place, that is, the pawl which was in, is drawn out. Or what was out is permitted to fall in. It is therefore also clear that these buttons marked 70 are what are called the selecting mechanism, that is, they determine the direction in which the spindle 11 is to be turned at the time, determined by timing mechanism in this chain here. Now the nuts 9 which are mounted on spindle 11, have special stops which are called 7, and which in all respects correspond to the stops described. They have a cut-out and can be operated by cam levers 15 and connect the rods 16. There is only one difference here, that the outer end of these levers marked 18 is provided with a rod which runs about the width of a section and which is marked 17 in Figs. 1 and 2 of the enlarged patent draw- [fol. 66] ings, that makes it possible with this operation of swinging the special stop lever up and down to make this split and which can be kept up while they are moving inward or outward, that is the outer holes are both wide enough that they slide on rod 17 so that they will operate, no matter in what relative position they are. In that way Schletter is able to make almost any design which may come along in the knitting industry.

Another thing which he had to provide for is the fact that this attachment and the narrowing motion may not work together because if it does, it will cause a smashing of the machine. It would be impossible to work them at the same time. That is, while the narrowing machine works, this attachment will not work. Since the human element is involved there, that a mistake may be made, he had to provide a safety device to prevent that. This safety device is shown in Figs. 11 and 12 of the patent drawing Sheet 2. This device is made in connection with what I described as the chain motion. Here this lever marked 99 is the lever which falls in, your Honor remembers, between the two shifting cams which causes the shifting cam to shift, which

moves this motion to the left—towards the cam shaft. When that swings to the left, the other end of it naturally swings to the right and to this other end he has attached a rod 94 which will push in that direction and come into the path of an extended lever 96. This lever is mounted on this shifting rod 42. That means this one here (indicating). Now when the arm 99 falls inwards down here, this other little arm which is marked 94 comes out and arrests this shifting rod so that even though a mistake should have been made [fol. 67] and this is lifted, it cannot be shifted while the narrowing machine is operating.

When I say that the attachment is not to be permitted to work while the narrowing machine was operative, that does not mean that the design cannot be placed in the part of the stockings which is being narrowed. I have explained that between the narrowings there is a certain space of plain knitting which varies, of course, according to the design, which might simply be so arranged that the working of this attachment takes place throughout in these plain courses, not where the narrowing takes place.

I will briefly state what part of the attachment is shown on this aluminum model, Exhibit 11 for identification.

This model shows on the reversely-threaded spindle two nuts with their special oscillating stops No. 7. It shows the cam means through which this oscillating stop obtains its motion according to the provisions of the letters patent; it shows the two ratchets—the right and left hand ratchets and it shows the connection to their cam levers, it shows the cam rollers which are shifted in order to put them into connection; it shows the cam shift and reverse; it shows the rod 42 to which they are mounted. It also shows here the arresting lever which prevents shifting of that rod and the chain motion which brings them into operation to put the pawling motion in and out of operation. It also shows the lever which is being the connecting link to the pawl 71 in the rear of the machine, and operates this ratchet which takes care of these two pawls by means of these chains—they are, of course, substituted here by little pins, and which exchange these pawls whenever it is desired.

[fol. 68] If you will wait, I can demonstrate that very clearly. Now there is one of these pawls coming here. If your Honor will watch, you will see how they shift to the active cam. This will be lifted by this motion and permits

that rod to shift. In its shifting, it brings these rollers from the inactive cam to the active cam, thereby operating the pawling motion there. Now this particular pawl is operating. That has just changed now. That pawl was operating and that has been done by this lever back here. There are buttons which are represented by this round part up here. Now this pawl operates and turns the spindle in the opposite direction. Now the next time we will change again, I think. No, not that time. Now they changed. Did you see, they changed from the right to the left again.

Referring to the drawing which has been marked Exhibit 15 for identification, I will state that in my opinion that drawing fairly illustrates the construction as shown and described in the patent in suit.

I will now refer to some of the different types of work that can be done on this attachment and will explain the manner in which the attachment operates in doing these different kinds of work. First, I will refer to the illustration in Fig. 10 of the patent in suit.

The stocking as illustrated in Fig. 10 of the patent drawings and shown somewhat enlarged on this exhibit——

Mr. Howson: I will offer the drawing to which the witness has just referred as Plaintiff's Exhibit 16.

(Marked Plaintiff's Exhibit 16.)

[fol. 69] The Witness (continuing): In this Exhibit 16, showing the same stocking of which I have an actual sample here.

Mr. Howson: I will offer that sample as Plaintiff's Exhibit 17.

Mr. Darby: That is not the same, is it?

Mr. Howson: Why don't you cross-examine him about it. It is supposed to be the same.

Mr. Darby: You are not advancing this as the same as this; it is not the same.

The Witness: When I said it was the same, I meant as far as the purpose of this attachment is concerned. The lower end of it, instead of ending here, runs straight down to the sole or instep, but the part with which we are really concerned, is the same. That is the zigzag line here. The carrier rods which are needed to do this are very clearly shown by the diagram right on top of the stocking blank.

In this diagram the red represents the stop 7, and the green in the center which is running from the inside to the outside of these stops is making the inside design, just as these stops come here and go together, it makes them in accordance with the provision of the stops. The red stops which are marked 2, the carrying rods being marked 1, 2 and 3, work between the left yellow stop, while the right abutment also marked green on carrier No. 3 is exactly the same thing, between the right hand stop and the right outside stop of Schletter. In other words, this motion is made by [fol. 70] this stop as well as that (indicating). If this stop goes two needles, this will go two needles shorter and this two needles longer. In other words, they will keep in contact with each other to keep the line of overlapping here in exactly the right position.

Q. Now, Mr. Meyer, I want to get what Mr. Darby said straightened out in the record at this point. As I understand it, the drawing, Exhibit 16, is what is intended to illustrate just exactly how a stocking substantially identical with that shown in Fig. 10 would be made?

A. That is correct.

Q. In this stocking which I think has been offered in evidence, state briefly how this stocking compares in design and in the way in which it would be made to that which is illustrated in Plaintiff's Exhibit 16.

A. This stocking is exactly the same as the design in the patent drawing, with the one exception that instead of closing the design here shortly before the instep, it shows from this point on.

Q. In other words, the design in the drawing would stop about here (indicating) in the stocking.

A. It simply would leave here (indicating), but in this one it goes straight down.

Mr. Howson: I offer in evidence the stocking which has just been referred to by the witness and ask that it be marked Plaintiff's Exhibit 17.

(Marked Plaintiff's Exhibit 17.)

Q. Can you produce, Mr. Meyer, another example or illustration of insert work which can be made by use of the at- [fol. 71] tachment?

A. Yes, I have another drawing here.

Mr. Howson: I will offer in evidence the drawing that the witness is about to refer to, as Plaintiff's Exhibit 18.

(Marked Plaintiff's Exhibit 18.)

The Witness: This drawing, Exhibit 18, also shows an insert into the center of the stocking. By an insert we mean that this is of a different material and is not put on top of this body of the stocking, but is inserted into it. It is made of a different material from the stocking itself and it is connected to it by an overlapping line which can either be a closed or open slit as explained before.

I have here a part of a stocking blank which shows such an insert of a different material, which has, however, not exactly the same shape as that, but that is immaterial. The material is not the same as the stocking itself. The operation of the carrier rods is practically exactly the same as in the Schletter stocking here being the same thing, only being shown that also a small design can be made in this way.

Here is the extra carrier rod No. 4 shown—the body of the stocking up to this point here where the carrier rod No. 1 takes the center of the design, the left, and carrier No. 3 the right side of the stocking as in the Schletter's stocking. It is also perhaps to be noticed that this design is made exactly where the narrowing of the stocking takes place; that is where Schletter's safety device comes into operation to prevent the narrowing and the shifting meeting at exactly the same course. They must not come together.

[fol. 72] Q. This piece of fabric which you have used in your last answer, is that illustrative of the type of insert work that you are referring to?

A. This is of the same type although not of the same shape as shown here.

Mr. Howson: We offer in evidence for the purpose of illustration the insert work testified to by the witness and ask that it be marked 19.

(Marked Plaintiff's Exhibit 19.)

The Witness: The specification at page 2, line 20, specifies that the

"• • • mechanism is capable of co-acting with respect to the web-forming needles to provide clocks or other orna-

mental reinforcements which may be ornamental or useful or both."

It goes on to say that:

"• • • other than that shown in Fig. 10, is disclosed in letters patent granted me (Schletter) under date of March 31, 1935, and numbered 1,531,349, wherein the clocks are made by a splicing yarn instead of by split-seam work."

I will explain what that splicing work is.

Mr. Howson: This drawing that the witness is about to refer to I ask be marked Plaintiff's Exhibit 20.

(Marked Plaintiff's Exhibit 20.)

[fol. 73] The Witness: This stocking, or this drawing, rather, Exhibit 20, shows an example of work known as shadow clock. The name comes from the fact that a thread —an additional thread is laid on the body of this fabric of the stocking. This time it is not a connection but this thread is simply laid on top of it and when worn on the human leg it has the effect of a shadow and hence its name "shadow clocks." We have a stocking here which shows that very plainly.

The Court: I know what you mean.

The Witness (continuing): Now to make this as shown here by Exhibit No. 20, the carrier rod No. 5 in this case is running across the full width of the stocking until we come to a point of these clocks. At that point carrier rods 3 and 4 are put into action, one of them making the right and one making the left clock, the motion being, of course, exactly the same for both. That continues until you come to the heel reinforcement which is marked here. That heel reinforcement is made by carrier rods 1 and 2 working between the stops which have then come to a complete standstill. That is, the design is all straight, so this reinforcement, that is, the reinforcement of this heel, in that way these designs can be made by the employment of five carrier rods at the same time. In this case the auxiliary stops of the attachment control between them carriers 3 and 4 and co-operate with the end stops in covering 1 and 2.

By Mr. Howson:

Q. You showed the Court a specimen stocking to illustrate [fol. 74] that shadow work of Schletter's earlier patent. I offer that in evidence.

A. I would like to refer you to that, Mr. Howson, that this one comes directly out of the reinforced heel, that being the object of Schletter's patent. There are other reinforcements which do not do that, which are entirely free from the heel reinforcement.

Mr. Howson: I offer that specimen in evidence as Plaintiff's Exhibit No. 21.

(Marked Plaintiff's Exhibit 21.)

Q. I would like you to get another example of clock work such as can be produced by the attachment of the patent in suit, Mr. Meyer.

A. Here is a sample of clockwork like that which is independent of the heel reinforcement, right on the body of the stocking itself. The carrier motion is practically the same as the one described.

Mr. Howson: We offer this stocking last produced by the witness as Plaintiff's Exhibit No. 22.

(Marked Plaintiff's Exhibit 22.)

Q. That is as to illustrated shadow clocks. Is there any other type of clockwork that can be made by the use of the attachment of the patent in suit?

A. Oh, yes, there are various types. One of them is known as the so-called window clocks.

Q. Give us a specimen of that and explain what type of work it is and how the attachment is utilized in forming it?

A. A window clock is exactly the opposite of a shadow clock. That is to say, in a window clock the body of the stocking is reinforced, made of two threads, while the clock itself is only made of one thread, thus becoming less [fol. 75] transparent than the body of the stocking, to appear like a window.

The window clocks are made as illustrated by this exhibit, but the carrier No. 4 is making the body of the stocking down to where the window clocks begin. At that point an additional thread is knitted into the stocking by carrier

rod No. 3, which is making the part between the open clocks from here to here and in the center while carrier No. 2 is making the reinforced part from the left outer selvage to the left outer edge of the window clock; the carrier No. 1 is from the right outer selvage to the left outer selvage of the window clock design.

Mr. Howson: We offer the stocking as Plaintiff's Exhibit No. 23.

(Marked Plaintiff's Exhibit 23.)

And the drawing as Plaintiff's Exhibit No. 24.

(Marked Plaintiff's Exhibit 24.)

Q. In referring to the reinforcement work done by the attachment in the patent, at line 25, page 2, there is reference to clocks and other ornamental reinforcements, can you illustrate any form of ornamental reinforcement other than that you have already described?

A. Yes, there is what is called selvage reinforcements which are, of course, run from the selvage of the stocking instead of the center of the fabric. The selvage reinforcements are of course, forming the heel when the stocking is sewed together afterwards and their ornamental effect is in the upper extension of the heel or reinforcement, and they are made in the same way as the others, carrier [fol. 76] rod No. 3 making the body of the stocking all the way through to here, and carrier rod No. 2 laying the additional thread for the reinforced selvage—fancy reinforced selvage on top of the body, on the left side of the stocking, while carrier No. 1 is doing the same thing on the right side between the under studs and the left studs shown in Schletter's patent.

Here is a sample of one of the reinforced selvage stockings.

Mr. Howson: We offer the stocking and the drawing last referred to by the witness, and ask that they be marked respectively Plaintiff's Exhibits 25 and 26.

(Marked, the drawing Plaintiff's Exhibit 25 and the stocking Plaintiff's Exhibit 26.)

Q. Mr. Meyer, I hand you another stocking. You might state briefly what type of stocking that is.

A. That is also a fancy reinforcement—selvage reinforcement of the same nature as the one just described, only where this one is laid on top of the body of the stocking, this one is shown here to have the reinforced selvage attachment made of different material and is joined to the body of the stocking by the overlapping of the needles.

Mr. Howson: We offer this as Plaintiff's Exhibit No. 27.

(Marked Plaintiff's Exhibit 27.)

Q. Now Mr. Meyer, the stockings to which you have thus far been referring are stockings which involve design work made on the legger. Is the attachment also applicable to work on the footer?

[fol. 77] A. It is. I can produce a specimen of work which is performed by use of the attachment to the footer. This stocking here is provided with a foot reinforcement which is known as the "cradle foot." The cradle foot is a reinforcement in which the end reinforcement follows the outline of the shoe, and which is extremely popular just now. In fact, it is almost exclusively sold and there is hardly any other stocking today. This cradle foot makes it necessary that the enforcement comes in one direction here and goes backward and reverses its direction again to come out again.

It is perhaps better shown here on this exhibit which shows clearly how the reinforcement here is wider, gets narrower, here gets straight and here becomes wider again. In other words, the carrier rod stops itself, going in one direction, going straight and coming to the opposite direction to obtain this curve, which this stocking very clearly shows.

The different carriers are controlled by the stops in doing that in the same way as before. The carrier rod No. 3 goes the full width of the foot, changing its stroke only to define the narrowing, or at least created by narrowing, while carrier rod No. 1 makes the left reinforcement and carrier rod No. 2 makes a right reinforcement to create the shape of the cradle foot as it is shown here.

Mr. Howson: We offer the drawing as Plaintiff's Exhibit No. 28 and the stocking as Plaintiff's Exhibit No. 29.

(Marked Plaintiff's Exhibit 28 and 29 respectively.)

[fol. 78] Q. I hand you another stocking and stocking blank. Will you state what, if anything, that illustrates

in connection with the work on the attachment on the footer?

A. That is also a cradle foot reinforcement but made in the form of what you call split foot. That is the center part or instep part, is made of silk in this particular case, while the sole is made of cotton and it is connected in there under a long suture, seamed here along the line of the cradle foot, showing that curve which is characteristic of the cradle foot, but it is a different material also. The carrier rods work, of course, exactly the same way, except they make the section of cotton overlap here along the line.

Mr. Howson: We offer the specimen last referred to by the witness as Plaintiff's Exhibit 30.

(Marked Plaintiff's Exhibit 30.)

Q. And do you recognize this stocking as also a form of the cradle foot with special fancy design?

A. That is a cradle foot with an additional fancy design along the otherwise straight line.

Mr. Howson: I offer this as Plaintiff's Exhibit 31.

(Marked Plaintiff's Exhibit 31.)

Q. Now, Mr. Meyer, state whether or not the plaintiff, Textile Machine Works, has put this Schletter attachment into actual use?

A. Oh, yes. I produce an illustration of the attachment as manufactured and sold by the plaintiff. This is a copy of the Reading Record, a paper which is is- [fol. 79] sued by the Textile Machine Works monthly, and on pages 2 and 3 of that record there are illustrations of the attachment in the form in which it has been put out by the Textile Machine Works. I will explain the construction and operation of the attachment as put out by the plaintiff. (Witness produces drawing.)

Mr. Howson: I offer in evidence the copy of the "Reading Record" of 1930 as identified by the witness as Plaintiff's Exhibit 32.

(Marked Plaintiff's Exhibit 32.)

The Witness: This drawing shows the commercial form in which the Textile Machine Works brought this attachment into the market. It consists also of the reversely-

threaded spindle 11—on which two nuts 9 are mounted in such a way that a clockwise or counter-clockwise turning of spindle 11 would move them away from each other or towards each other. These nuts are also provided with extensions 8 containing special stops numbered 7, these stops being arranged in the form of individual slides for each carrier rod for the sake of convenience the effect being exactly the same as a sliding stop would be because they are rigidly mounted with the exception that they can be slid up and down in the extensions 8.

The outer end of spindle 11 is also provided with two ratchet wheels 21 and 22, the teeth of which are cut one here and one here (indicating) in opposite directions. There is also the arresting disc which is shown in Schletter's patent and the corresponding plunger and hand [fol. 80] lever by which this arresting disc can be released. Then there are two pawls, 25 and 26, one of them working in the right hand ratchet wheel and the other working in the left hand ratchet wheel and these pawls receive their pawling motion by a connecting rod from a lever which is marked 29-29a, the markings of these parts being the same as in this Schletter patent but only where in the Schletter patent are two levers this has been, for commercial reasons, simplified into one, but it is exactly the same thing. It is the same lever with a roller on it which can be brought into or out of operation whenever it is desired to give a pawling motion to the two pawls 25 or 26. That is done by a chain which is provided with a number of buttons, 72. These buttons work against the outer end or lower end of a vertical lever, the upper end of which is resting under the cam lever 29-29a and the roller 30-31. That means that ordinarily this cam lever, this supporting lever or retaining lever will prevent this roller from working on its cam because the cam is round. When one of the buttons comes in contact it will swing the lever out of the way and permit a pawling motion to the two pawls to turn the spindle in either the right or left direction.

The selection of those pawls, that is, whether they have to operate one way or the other, is made by the selecting mechanism which consists of a lever 74-75, a connecting rod 73, and another lever extending to the front of the machine. Normally when the retaining lever is swung out of the way

it just touches this selecting lever and the right hand pawl remains in operation. It will be noticed that here the [fol. 81] buttons, some are lower and some are higher and when a higher button comes under this the lever is swung over an additional amount, pulling this lever over and thereby by this connection of levers exchanging the pawls from one to the other.

Now there is only one chain and one row of buttons being used in this attachment. The only difference is that those buttons are lower and these buttons are higher (indicating) being the exact equivalent of two rows of buttons, or for that matter two chains; merely to make the attachment commercially cheaper, of course, that has been adopted.

This is not the very first form of the attachment as Plaintiff put it out. As first put out it had that sliding stop just as shown in the patent in suit. Since then these slides have been added to the stop so as to make it more convenient to select the carrier rods. Apart from that the only difference between the plaintiff's attachment as made commercially and that as shown in the patent in suit is that instead of the two independent or different chains to operate the time and selecting mechanisms separately, they operate them still independently but by a single chain with two sets of buttons because it is cheaper.

I have examined the photograph of the defendant's attachment as illustrated in Plaintiff's Exhibit 2, as well as the machine from which they were taken.

Mr. Howson: I offer in evidence the perspective drawing used by the witness in describing the commercial form of [fol. 82] plaintiff's attachment as Plaintiff's Exhibit 33.

(Marked Plaintiff's Exhibit 33.)

I will describe the construction and operation of the defendant's attachment as illustrated in the stipulated pictures, Plaintiff's Exhibit 2. The defendant's attachment as illustrated here by this drawing, Exhibit No. ——

Mr. Howson: I have not offered it yet. We will offer it as Exhibit 34.

(Marked Exhibit 34.)

A. (Continuing.) —as Exhibit 34 we have again reversely-threaded spindle 11 to describe it properly the same as for all the former attachments described; we have also

the nuts 9 with their extension 8 and their stop 7. Defendant's attachment uses the same arrangement as the plaintiff in the commercial form of its attachment, only instead of having these slides permanently located, to be moved up and down away from the carrier rods or in the path of their carrier rod abutments, they take these stops 7 out and have provided a number of holes which are distributed over the width of the carrier rod and wherever they want to stop a carrier rod they put this stop into that hole, being in effect the same as the slides there. The outer end of the spindle is also connected with two ratchets giving the right and left direction and it also has the arresting disc with the corresponding plunger to enter the V-shaped disc of the periphery. The pawling motion is controlled from a chain in the front of the machine with a row of buttons. This particular row of buttons is the one which is [fol. 83] marked 55. Nos. 50-70 are the chain. The buttons 55 come under one of these levers and push the rod 42 corresponding to the shaft rod in the Schletter patent with a shifting lever here pushing the roller 30-31 over from an inactive position to an active position, thereby oscillating the cam lever 29-29a, which is connected to the vertical connection by a rod 27-28 giving the pawling motion to the lever to which those two pawls are fastened.

Now to select which one of those two pawls is to operate there is a second row of buttons. These buttons are marked 72 on the chain and they are lifting the bell-crank lever similar to the one for the operating of the pawling mechanism or timing mechanism and pushing to the right and shifting rod 74. At some place along this shifting rod a wedge-like piece of metal is fastened.

The Court: Let me ask a question: I understood counsel for defense to say, when he was asked as to his defenses what he had to say about infringement, to say that the two devices, the plaintiff's device and the defendant's device were similar but that neither one of them was similar to the patent in suit. My understanding of that statement is it would mean that he did not question the similarity in construction of those two devices. You are merely contending that neither the plaintiff nor the defendant followed the teachings of this specific patent. It might shorten your examination on this defendant's device.

[fol. 84] Mr. Howson: I think the witness is almost through. Of course, it is important that our record make it clear what the actual defendant's construction is.

The Court: You have that drawing.

The Witness (continuing): This ratchet which is shown and marked as 75 here in the drawing pushes a connecting rod which is going to the rear of the machine and moves a bell-crank lever 78. This bell-crank lever is connected to the pawls again by a rod 79 and in this way the pawl which is to operate is selected.

By Mr. Howson:

Q. And in this case as I understand it, the difference between the defendant's device and that of the patent in suit is the operation simply has to do with the placing on a single chain the two sets of buttons to operate independently time and selecting mechanisms, whereas in the patent in suit there is one in front and one in back?

A. That is correct.

Q. Now, what type of machine is it that is used by the defendant—knitting machine?

A. That is the Lieberknecht machine. That means that it is a machine manufactured by Karl Lieberknecht in Germany and imported here by the defendant to the Hirsch Knitting Machine Company. It is the Cotton type of machine—the ordinary Cotton type of full-fashioned knitting machine.

Q. In the mode of operation in the way of performing the work made by the attachment, will you state what, if any, [fol. 85] difference there is between the device of the plaintiff's patent in suit as you have explained it and the defendant's attachment as you have explained it?

A. There is no difference; they are substantially alike. The same kind of work performed in the same way.

I was a witness in the Hofmann suit, and I am familiar with the defendant's attachment in that suit. I am shown a drawing of that attachment as contained on page 65 of Volume II of the record in the previous suit. I will say that defendant's device in this case and that device are substantially the sa[illegible]

Mr. Darby: I did not know that we are here before the Court defending a charge of infringement by the Hofmann Machine. I do not see that that is relevant or material.

The Court: No, I suppose counsel's idea is that if an opinion is to mean anything to me I should know what is in the record before that Court.

Mr. Darby: Yes. And the record is before your Honor for that very purpose. I do not know how far he wants to go into the evidence. I have not any objection if your Honor thinks it will be helpful.

Mr. Howson: I am afraid that I will have to go a little further as to the importance of this. I agree it is not res adjudicata, but the force and effect of an opinion in another court, in so far as it involves the same state of facts has certain importance on principles of comity and for reasons [fol. 86] which, of course, your Honor understands.

The Court: Of course it all goes back in the end to what I think about it myself. I have to stand on my own feet when the time comes. But of course you are going to argue and you will insist that one district court and one court of appeals have held this patent to be valid and to be infringed by a certain device which device is the equivalent of the device now complained of.

Mr. Howson: Exactly.

The Court: Therefore you want me to know what was before that Court and you have a right to do that. I don't think counsel have any serious objection?

Mr. Darby: Not at all. I thought he would accomplish that by putting the record in.

The Court: I supposed so, but I suppose he wants this witness to point out what, if any, differences there are between them.

The Witness: It is exactly the same. We have the reversely-threaded spindle, the nuts with the carrying rod stops; we have the two ratchets with the teeth cut in the opposite direction; the arresting disc; we have the pawling mechanism which is shown by this rod here pushing over—this motion here giving the motion to the pawls and operated by a line of buttons on the chain and we have the selecting mechanism operating by a second line of chains and the operating and second shifting rod which selects by a combination of levers the pawl which is to operate.

[fol. 87] I have caused a set of photographs of the defendant's device included in Exhibit 2 to be marked with identifying numbers corresponding to the numbers which are

used on Plaintiff's Exhibit 33 for the convenience of the Court if it wishes to make the comparison.

Mr. Howson: I offer this set of photographs in evidence as Plaintiff's Exhibit 35.

Mr. Darby: Can we not consent to a substitution of these for the others?

Mr. Howson: All right. That will make me very happy.

The Court: Substituted for those mentioned in the stipulation?

Mr. Howson: Yes.

I offer in evidence the drawing to which the witness referred as illustrative of the defendant's attachment in the Hofmann case as Plaintiff's Exhibit 35.

(Marked Plaintiff's Exhibit 35.)

The Witness: I will state to what extent the plaintiff has made use of the attachment as I have described the attachment, in commercial form. The plaintiff has sold a great many of these attachments aside from the attachments which were put on the machines. That means independently from the machines. As far as the machines are concerned plaintiff is still selling machines with the attachment. As to how long that has been, I will say that that is many years ago. I could not state. It depends exactly when we had that standard on machines.

Referring to Plaintiff's Exhibit 3 it appears that the stop used in the commercial form of attachment as shown [fol. 88] in this drawing are not the undercut stops or split-sole stops of the type I have described. It is a fact that in the commercial form attachment we have used the sliding stop and not the undercut stop. So far as the making of split seams is concerned, we make the split seams on the commercial form of attachment in the form of a closed split with the solid stops which is one of the forms of split-seam which can be made by the precise form of the plaintiff's attachment as described in his patent.

Mr. Howson: Now, if the Court please, in the absence of the omission of something which I wanted to put in, and neglected to do, that ends the direct examination of the witness.

Trial Resumed

Mr. Howson: If the Court please, I would like to interrupt the deposition of Mr. Meyer for the purpose of putting on one or two fact witnesses. Mr. Darby has kindly consented to that.

The Court: Very well.

Hugo Hemmerich, called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct examination.

By Mr. Howson:

The Witness: I am 47 years old; I live at 1248 Penn Avenue, Wyomissing, Pennsylvania. I am superintendent of [fol. 89] the Berkshire Knitting Mills, Reading, Pennsylvania. The Berkshire Knitting Mills are manufacturers of full-fashioned silk stockings for ladies. I have been connected with that company for over 26 years.

As to what, if any, connection there is between the Berkshire Knitting Mills and the Textile Machine Works in Reading, I will say that they are separate organizations; managed entirely separate, but the owners, Messrs. Thun and Henry Janssen are the main stockholders in the Berkshire Knitting Mills and owners of the Textile. But the business is operated entirely separate. I have no connection whatever with the Textile Machine Works.

As to what make of knitting machines are used by Berkshire, I will say that we are using full-fashioned hosiery machines manufactured by the Textile Machine Works. At present we have 1180 machines. As to what the daily capacity of those machines is, I will say that we are manufacturing normally about 12,000 dozen per day. As far as I know it is the largest mill in existence for ladies' full-fashioned silk hosiery. The product of the Berkshire Knitting Mills is high-grade silk hosiery only.

I am familiar with the reinforced selvage or shadow clock attachment as put out by the Textile Machine Works. We use it in our mill. I am shown Plaintiff's Exhibit 32 and asked to look at page 3 of the exhibit and state whether or not I recognize that as the attachment. I will say that I do. That is the reinforced selvage. In this picture I

note that the attachment is provided with a series of slides. Our attachments are provided with slides. When we first [fol. 90] procured such attachments from Textile they had straight blocks—the first attachments we received.

As to how many of those attachments we have in operation, I will say that—the reinforced selvage attachments, as such, we have 1023 and the remaining 157 machines have not got it. We procured the first of such attachments about 1927. We equipped our machines gradually with the attachments, and, of course the new machines always had them on. I am asked to state for what purpose we have used the attachments. I will state that we have made pointex heel, double pointex heel and various kinds of fancy goods and selvage reinforcements, French heels, cradle-foot and split-seam work at an angle of the wales and courses of the stocking. As to whether the machines with these attachments have been largely used, I will say that we are using them all the time. We have found the attachments highly satisfactory for those purposes.

Q. Mr. Hemmerich, you have had experience with full-fashioned knitting machinery for at least 26 years you have testified and had experience in the largest full-fashioned hosiery mill. I wish you would state what your attitude towards that attachment is; that is, how you regard it. Is it one of value to the full-fashioned machine or of importance or how would you consider it?

A. Well, I would consider it all-important. I think no manufacturer would want to buy a knitting machine, full-fashioned knitting machine, without that attachment.

Q. Since you have had the attachment has it changed in any way the manner in which you have manufactured your [fol. 91] stockings or the designs or things of that kind?

A. Well, I would like to mention above all the development of the cradle-foot, which, since the development of the attachment, has become in universal demand.

As to whether or not I regard an attachment having the capacity for doing these various designed works for which I have used it is or is not of importance to the full-fashioned knitting machinery, I will say that it is all-important.

Mr. Howson: You may examine.

Cross-examination.

By Mr. Darby:

The Witness: I am familiar with the attachment that we acquired from the Textile Machine Works. I am familiar with the reversely-threaded spindle. We acquired these reversely-threaded spindle attachments from the Textile Machine Works, at the end of 1927. At that time we got the first ones. We were making the so-called pointed heels before that time. We made them on an attachment that we also bought from the Textile Machine Works. That was not an attachment with a reversely-threaded spindle. The first reversely-threaded spindle that we had as an attachment to the machine is the attachment we acquired and I testified about acquiring from the Textile Machine Works beginning at the end of 1927. In these attachments that we acquired from the Textile Machine Works, they were solid stops to my recollection in the first ones. They were not undercut. They were tilting stops. They could be thrown out of operation entirely, and the spindle was pattern-chain controlled. At that time we had one chain.

[fol. 92] Q. And that one chain controlled not only the amount of rotation of the spindle but it also controlled in which direction the spindle would rotate, is that right?

A. Are you referring to the reversely-threaded spindle now or to the straight one?

Q. The reversely-threaded spindle of the attachment.

A. Well, the ones that we are using, they have different kinds of buttons on the chain and on account of the height of the button the controller lever action which throws out a pin controls the ratchet for forward or backward motion.

Q. And in that respect the machines that you are using now are the same as the first ones that you got from Textile Machine Works?

A. Well, they were changed from time to time. But we are still using one chain for going backward or forward on the spindle. To my recollection we have always used that one chain since the first attachment we got from the Textile.

As to whether we ever made shadow clocks with that attachment for the commercial market, I will say that we only made samples, but we never made them commercially. We never made any split clocks commercially with that

attachment either. The reason was that we simply did not want to go into that type of business. Our practice had been to make mostly plain merchandise.

Q. You refer to at the present time, I presume. You are making the pointed heel stockings?

A. We are making the so-called French heels, the so-called curved heels that curves into the sole.

As to whether we use automatic operation of the spindle in the stockings we are manufacturing now in both direc-
[fol. 93] tions; that is, automatic in both directions for the leg part of the stocking, I will say that for the leg part of the stocking we only use one direction. That is, for the leg part of the stocking we just automatically move the spindle in one direction. When the stocking is completed, we get the stops back by racking it out by hand. So far as our commercial stockings today are concerned, in so far as the leg portion is concerned, we only need automatic rotation of the spindle in one direction for the leg part, but the machines are equipped with the reversely-threaded spindle. If we want to and we made stockings like that some years ago. That was shortly after we first got the attachment. That was the double pointed heel type of stocking; a so-called Diablo heel. That is a heel effect that starts with the wide part, you know, the regular width of the splicing and then comes in on an angle towards the selvage and then comes out again. This "Diablo" is a game that is played in Japan and still is played in Japan. I refer to this type, Plaintiff's Exhibit 27. That is what we call "Diablo." That style of stocking is no longer popular. We do not make it any more. We do not even make a so-called pointed heel today any more. Today it is practically all French heels; narrow at the top and curving in toward the sole and with the full cradle-foot.

In making the cradle-foot on the footer we use two racks automatically for power. So far as the leg of the stocking is concerned we only use one way racking by power. We used one way racking by power, in making the pointed heels before we acquired the attachment from the Textile Ma-
[fol. 94] chine Works. That was not a drum attachment. That was also an attachment of similar construction. That was not the reversely-threaded spindle. The reversely-threaded spindle subsequently came out, afterwards. It was only racked in one direction. It was a spindle.

Q. It had reverse threads on it, didn't it?

A. Yes. I mean the spindle was reversely threaded with two stops on, yes.

Q. That is what I want to get at. So that the equipment which you used which was likewise the attachment in producing pointed heels before you got the attachment which we are here referring to as the Schletter attachment consisted of a shaft of metal with threads reversed as to each other on the opposite ends, is that right?

A. Yes. But we used it automatically reversing.

Mr. Howson: If the Court please, I did not examine this witness about anything on the direct that Mr. Darby is now trying to inquire into. I did not call this witness for any such purpose, and he did not testify with reference to it.

Mr. Darby: If the Court please, the witness has testified that this is one of the most important things in connection with the machine. I certainly am entitled to find out what he was equipped with before he got this most important thing and see what the difference is between them. The witness obviously knows what he is talking about.

The Court: I think the cross-examination has proceeded as far as legitimate inquiry will allow you in that respect. [fol. 95] It was upon that theory that I permitted you to cross-examine him as far as you have. I will limit it to where it is now.

Mr. Darby: If the Court please, I don't want to be unduly insistent, but all that I want to get from the witness is the statement, at least sufficient to correct the erroneous impression that he made previously in the part of the examination that you permitted so as to make it clear that we were both talking about the same thing. Your Honor will recall the witness said a few minutes ago that they did not use reversely-threaded spindles. Now the purpose of the present inquiry is to have him correct that, or at least permit me to correct it because he misunderstands.

Mr. Howson: He has now said it had a reversely-threaded spindle.

The Witness: I was referring, of course, to the automatic reversible motion which we are using today in the cradle foot construction which we did not have in the beginning.

Mr. Darby: To crystallize it completely I wanted to put one question more.

The Court: Put your question and we will see what it is.

Q. You have, as I understand it then, as an attachment a spindle such as is illustrated by the reference numeral 11 in the Plaintiff's Exhibit 15 for identification on which was mounted threaded stops and mechanism for rotating in one direction automatically from the machine but hand [fol. 96] mechanism for rotating it in the opposite direction?

Mr. Howson: I object to that if the Court please because it is assuming to enter the prior art, and if we are going to do that in our case I will have to open fully as to the prior art, and that is not the——

The Court: I think he may answer this question.

Mr. Darby: Do you understand the question?

The Witness: Will you please repeat it once more.

Q. (Question read.)

A. That is what we started with, yes.

Mr. Darby: That is as far as I am going to carry the inquiry under your Honor's ruling.

The Witness: I am asked with reference to the cradle foot, whether this cradle foot is a split operation or whether it is a splicing operation. I will say that we have both. The spliced foot we started to make in 1929. I am speaking of the full-fashioned crade foot. The split in full-fashioned cradle foot, we began about the same time. We made both the split and the spliced. We are making both today.

With reference to the suture seam in our cradle sole, we use the so-called closed split. That is an overlap of two needles in the straight, and four needles in the curved portion. In the straight portion of the cradle sole we have two [fol. 97] needle laps and in the curved portion we have four needles.

We have used the herringbone type of suture, that is, the so-called open split, before we made any cradle feet. I would say we used it from 1923 to 1929 or 1930. The construction at that time was demanded by two very large customers. We did not use any attachment made, or which we got from the Textile Machine Works, in making that. I mean not this particular attachment in question.

I am asked to state by referring to the split cradle sole type of stocking that I have been testifying about why we used the two needle lap in the straight operation and the four needle in the curved operation, I will say, that we used the two needle in the straight operation because it makes a

very nice point and the four needle in the curved portion. We have been more or less compelled to do so until very recently because if we would not use the four needle overlap there would be two laps missing; by continuing the two loop overlap, there would be a loop missing there at the point where the stops shift, at least at one side. There would not have been the proper knitting where the shift takes place. As to whether it would be a commercial product or not I would say that it would be what I would term an imperfect product. Yesterday testimony was given by Mr. Meyer concerning a rocker motion. I understand what is meant by that term. These attachments that are supplied to us by the Textile Machine Works are supplied with a rocker motion. A rocker motion is necessary without any doubt. You could [fol. 98] not possibly use this attachment for any useful purpose without them. You could not make a fabric without it.

We have always used the two needle lap in the straight portion of the cradle sole. We never used anything else. We continued with two needle lap for the straight part and we made the four needle for the curved part.

I testified we began making cradle soles about 1929. A two needle lap is what we call a closed split seam. It is not a herringbone. At least I call a herringbone a so-called open split—a floating loop.

Q. In your present commercial stocking how much do you narrow the slipper sole from the heel, how many needles do you go over?

A. I don't understand your question exactly. What do you mean by that, how many stops you introduce to make the final sole with?

Q. Yes.

A. It varies with the construction. We have various constructions. We have four stops, five, six, seven, up to ten.

Q. And as low as?

A. As the demand is. Sometimes we make a wider sole for practical wear; for a dancing slipper it is desirable to make the sole very narrow.

Q. What is the narrowest you have used—two-needle? Or have you gone down that low?

A. Two-needle for the surface?

Q. Yes.

A. We don't go that far for commercial construction.

Q. Did you go as high as ten?

A. You understand, I am talking from the instep down to the sole portion.

Q. Can you give me the lowest. You have given me the upper limit, now I would like to get the lowest limit.

[fol. 99] A. I would say four stops; in other words, eight needles on either side.

Mr. Darby: That is all.

Redirect examination.

By Mr. Howson:

The Witness: Mr. Darby asked me about an attachment which I referred to as a one-way attachment without reversing motion that was used for making Pointex heels. I will state what a Pointex heel is.

A Pointex heel is a heel reinforcement that runs in a triangular line away from the selvage edge toward the instep. It makes a pointed design at the heel like a pyramid. That requires a motion of the reversely-threaded spindle in one direction only. We did not use that attachment for any other purpose outside of that. At the time we first procured from the Textile Machine Works the attachment involved in this case, that is the attachment with the automatic reverse, the Textile Machine Works at the same time was still selling this one-way attachment for making a Pointex heel. The attachment with the reverse-threaded spindle was sold for a higher price than the price of the regular one.

As to what caused us to purchase the reversely-threaded spindle attachment at a higher price, instead of continuing to purchase the one-way attachment for making Pointex heels. I will say that the reversely-threaded attachment or the new attachment is decidedly better for greater designing possibilities. In other words, the prior attachment was sold for a single purpose of making a pointed heel, and the [fol. 100] new attachment was adopted to make a variety of designs.

I was asked about tiltable stops and I was asked whether the attachment sold to us by the Textile Machine Works with the reverse motion had tiltable stops, and I replied in the affirmative.

Q. Will you state what you referred to or did those stops have a rocking motion in operation or a tilted motion?

A. That was to put them in or out of operation.

I was asked about making open split seam work; in making work of that kind, there is required a rocking stop. In doing work of that kind, we used the split sole attachment referred to or shown in Fig. 35 of Plaintiff's Exhibit 6. That is the kind of attachment we used for open split.

As to what extent we manufactured for sale and sold hosiery with that open split work as made by use of the rocking part, I will say that I can, of course, only roughly estimate it, but I would say we made close to two million dozen pair. That was a perfectly commercial salable article—at least at that time.

I stated that in addition to making the open split work, we also at a later period started to make closed split work. We did work of that kind on this same attachment.

As to what we did to the attachment in the making of the closed split, I will say that we did not use the rocking motion with the stops. We just simply stopped the machine by the use of a lever as given in the attachment to make the stationary stops. That was a well known practice in the art in [fol. 101] connection with the manufacture of stockings. We were accustomed to do that.

Mr. Howson: I think that is all.

Recross-examination.

By Mr. Darby:

Q. Mr. Hemmerich, I think you told me on my first cross examination that there was sold to you as part of the attachment a rocker movement, is that right?

A. I could not tell you that exactly whether it was from the very beginning. We are buying today the machines and the rocker motion goes with the attachment.

Q. In your first cross examination——

A. When we bought the attachments—I think I recall we bought the rocker motion separately. As to whether these rocker motions are rather expensive, I will say that I don't know the exact price.

Q. Were any attachments made to the old spindles that you had in your machine? That is, was any equipment supplied by the Textile Machine Works which consisted only of the necessary mechanism for rotating the reversely-threaded machine you had on the machine as an attachment in both directions instead of one?

A. When we changed over, yes. I included all of those as attachments acquired from the Textile Machine Works; whereas all that they supplied us with was the pawl and ratchet mechanism for rotating the spindle in the opposite direction.

Q. You also said in your re-direct examination that in operation of the stops that you have on this attachment, it did not tilt in operation, is that correct?

A. I meant operation as such.

Q. Yes.

A. The stops in the spindle, you mean?

[fol. 102] Q. The stops controlled by the spindle, do they tilt while the machine is in operation or don't they?

A. Not in most of the machines, no. It is just stationary. You set them for a specific purpose.

Q. And they remain there?

A. Until the design is made or until you want to use a certain carrier or whatever you want to do.

Q. The only movement that is imparted to them is drawing them out of the operation, is that right?

A. For our purpose, yes.

I referred to a particular type of stocking we made, and I mentioned the volume being in the nature of two million dozen pair. That was the open split stocking. It was made with a suture seam. It was not a zig-zag design. It was what is called commercially an open split seam, but a perfectly straight seam. It did not by design incline to the wale.

Mr. Darby: That is all.

Redirect examination.

By Mr. Howson:

Q. Will you state whether or not there is any reason why an open split seam inclined to the wale would not be just as operative as a straight open split?

A. Well, I would not say there is any objection; it would be just as desirable commercially as a straight one.

Mr. Howson: That is all.

Recross-examination.

By Mr. Darby:

Q. I will ask just one question. Can you produce a commercial stocking with a two-needle split with the suture [fol. 103] inclined to the wales?

A. You mean the closed split?

Q. No, an open split.

A. An open split. Well, we haven't tried that yet, but we could produce a two-needle split all right, with the attachment which we have at the present time. We have demonstrated that. We have made a style, a foot style, where the curved part, the cradle part of the stocking, is combined of two needles or two loops.

Q. I recall to your mind the testimony that you gave me as to why you used the four-needle split in the curved portion of the cradle sole.

A. Why we use it, because at the time when we began making the curved portion or the so-called cradle-foot construction as a Cotton sole construction at that time we were not able to make the two needles overlap; our attachment did not allow us to make that, and we made a four-needle overlap.

Q. To make the matter perfectly clear, and to be sure that you and I are talking about the same thing, you understand me to mean by a two-needle open split, a suture, herringbone suture, that is your understanding?

A. When I talk about the curved part of the stocking, I am not talking about the open split at all.

Q. You are not talking about the open split?

A. Not about the open split. We never made an open split seam in the curved part of the stocking.

Q. I think you explained to me the reason why you did not is because the stocking would not be commercially practicable if you did that?

A. I did not say that.

Q. You did not?

A. Not to my knowledge. I misunderstood your question then.

[fol. 104] Q. Didn't you say that?

A. Because if we have never made it, I could not say whether it would be commercially salable or not.

Q. Didn't you state that there would be loose threads in that case?

A. When I spoke about the two-needle overlap or the two loop overlap in the curved part, I referred to the closed split seam which we operated all the time.

Q. Do you recall testifying in cross examination a few minutes ago that the reason why you did not use the two-needle open split was because you could not produce a practical stocking that way?

A. I was referring to the closed split.

Q. You were referring to the closed split?

A. Yes, because we did not experiment with the open split at all.

Q. Then, you don't know why you adopted the closed split instead of the open split?

A. We adopted the closed split long before we even thought about cradle-foot construction. We adopted the closed split because we considered it a stronger connection. There was criticism on the open split in the straight foot construction at the time on account of the irregularities with which the seam was made and for that reason we started using the closed split construction; what was introduced at that time in competition with the open split seam and we proved conclusively over a period of years that it was generally acepted in preference to the open split.

We use the two-needle closed split. We don't use the two-needle open slit any more. We did use it only in the straight construction and in the construction which was naturally also straight when we introduced it in 1929 or 1928 as the so-called Cobler (?).

[fol. 105] It is my testimony that I see no reason why the two-needle open split should not be used at an angle to the wales. I mean by that it can be sold just as well as the other one, to the same extent——

Q. My question is you see no particular difficulty in the manufacture of two-needle open split?

A. I would not answer that question, because I am not able to answer the question on account of not having any experience with it.

Redirect examination.

By Mr. Howson:

Q. Mr. Hemmerich, one more question: Assume that you were going to make an open split seam on an angle to the wales, it would be necessary to have a four-needle

overlap instead of a two-needle overlap; will you state whether or not there is commercially any objection to a four-needle split?

A. None whatsoever.

Mr. Howson: That is all.

F. Elwood Struve, called as a witness on behalf of the plaintiff, being duly sworn, testified as follows:

Direct examination.

By Mr. Howson:

The Witness: I am 45 years of age; I live at 6204 Fairhill Street, Philadelphia, general manager of Apex Hosiery Company. The business of the Apex Hosiery Company is the manufacture and sale of full-fashioned hosiery. I have [fol. 106] been connected with that company for eighteen years. I am general manager there. I have had about 33 years of experience with full-fashioned hosiery machinery. The product of the Apex Hosiery Company is a high-class product, exclusively. We have about 400 machines; 20 sections of each. That means as to the daily production of hosiery, about 4500 dozen pairs per day. That is a mill of large size relatively as compared to hosiery mills in general. I have positively no connection of any kind with the plaintiff in this case, the Textile Machine Works nor does the Apex Company have any connection with it.

We use full-fashioned knitting machines manufactured by the Textile Machine Works.

I am familiar with an attachment put out by the Textile Machine Works as a reinforced selvage or shadow clock attachment with reverse motion.

I understand the illustration on page 3 of Plaintiff's Exhibit 32, as an illustration of that attachment. I can state about when we first purchased such an attachment. It was August, 1927. We have purchased others since, right along. Every machine in our mill has that attachment on.

As to the type of work we have used them for, I will say that we make pointex heels,—double pointex, various kinds of fancy heels and shadow reinforcements, French heels and shadow clocks, cradle-feet and so on. We have found the attachment very satisfactory for this work. The at-

tachment is all-important as an addition to the regular full fashioned knitting machines, because it is very simple, [fol. 107] accurate, easy to set, easy to operate, and it has great possibilities as far as design and reinforcements are concerned. The capacity for making these various designs is very much of importance in connection with the manufacture of full-fashioned hosiery.

Mr. Howson: That is all.

Cross-examination.

By Mr. Darby:

The Witness: We first acquired the attachments with reverse motion from Textile Machine Works in 1927. That was equipped with a single chain. It was equipped with solid stops.

Q. Was it equipped with rocking movement?
A. You mean the first attachment?
Q. Yes.
A. Before 1927?
Q. No, after 1927?
A. That was equipped with stops.
Q. They were not rocker stops?
A. No.
Q. They were provided with means for the stops to be removed entirely?
A. Yes, sir.
Q. Were the attachments that you acquired complete in themselves or did they use some equipment already in the machines?
A. Well, it is practically the same equipment, only it has improvements.
Q. You had in your machine at the time reversely-threaded spindles, did you not?
A. Yes, we had the spindle on account of the two blocks.
Q. It was likewise equipped,—your spindle was likewise equipped with pawl and ratchet for turning it in one direction?

Mr. Howson: I object, if your Honor please; he is again [fol. 108] going into the prior devices. I did not call this witness to testify to anything at all with reference to the prior art, and it is not germane to the direct examination.

Mr. Darby: This has nothing to do with the prior art. I am trying to find out what this witness was supplied with.

The Court: Objection sustained.

Mr. Darby: May I note an exception?

The Court: Yes.

Q. In those instances where what you have described as an attachment that you acquired that you had used and that was already on the machine, will you please state just what was acquired from the Textile Machine Company?

A. Do you mean different from what we already had?

Q. Yes.

A. Well, we had a reverse motion.

Q. That was acquired?

A. That was acquired. That consisted of a chain operated directly from another chain and different parts that I can not describe.

Q. That is the levers and cams?

A. Yes, that is right.

Q. And the pawl and ratchet?

A. That is right.

Q. And that was attached—that pawl and ratchet—was attached to the spindle that you already had on the machine?

A. What you may call a pawl, an additional ratchet which would operate in the opposite direction.

That is what I described as an attachment which we acquired from the Textile Machine Works. We also acquired a rocker movement. That was included as part of the attachment.

[fol. 109] We made pointex heels before we acquired the attachment from the Textile Knitting Works.

Q. But the attachment, as you first acquired it from the Textile Knitting Works, did you use that attachment for making split fabrics?

A. We made split fabrics, yes.

Q. What type of sutures did you employ?

A. Just what do you mean by that?

Q. Was it two-needle open herringbone, or was it two-needle closed suture, or was it four-needle?

A. We made both. We made the herringbone and the closed split.

Q. Herringbone and the closed split?

A. Yes.

Q. Both two-needles and four-needles?

A. No, just two-needles only. Where we made a herringbone, it was a straight suture; it did not incline to the wales.

Q. Was there any reason why you did not or could not use the herringbone type of suture at an inclination to the wales?

A. Well, we were required to do that because we had abandoned that split way before this attachment came out.

Q. So that you had no occasion to incline the suture of the herringbone split to the wales?

A. Never. We use now the closed split seam and cradle foot.

We do use split work on the legger occasionally. We use it for instance on the black heel; colored heels.

Q. And you do that in split work rather than splicing?

A. Well, there is a combining there between different colors of the heel and the instep which is a natural color.

I know the difference between a splice and a split.

[fol. 110] Q. My question is, in making the black heel, is that a reinforced splicing or is it a straight split operation?

A. That is a straight closed split seam. It is a two-needle lap.

We have made shadow clocks. Spliced shadow clocks. There is a reason why we never made split shadow clocks. We did not have the attachment at the time we wanted to make them. We have never made split shadow clocks since we had that attachment because it is not desired. It is not in demand at the present time.

The Court: You mean no commercial demand?

The Witness: No commercial demand.

As to whether there is no manufacturing reason why it would be undesirable I would not say at this time. I believe it can be made if we have to.

I testified we did make four-needle lap design closed splits. We are now making them with a two-needle lap. On the curved portion we make them four needles. There is a reason why we changed from the four to two. It is essential there to make the four needle on account of the shifting; shifting on making the curves. You have to use the four needles to make a close binding there.

There is no objection at all to a four needle lap. I believe that a two needle lap is more desirable than a four needle lap.

Q. Why?

A. I never had that question brought to me.

Q. You must have had some reason for believing so? I merely want to get your reason.

[fol. 111] A. Well, there is no reason at all only that it is a finer reinforcement there; a finer seam there.

Q. In other words, it is not quite as bulky as a four needle lap?

A. That is not as wide.

Q. Not as unsightly?

A. Well, the split seam is not so sightly either.

Q. I was wondering whether it is not being so wide that you think it preferable?

A. Well, the split seam was always manufactured that way with the two needle overlap. That is the reason it has been made that way. In other words, it gives you sufficient binding; the two needles gives you sufficient binding and there is no reason to make it four needles.

Q. You have said that it is not as bulky and that it is not as wide.

A. I did not say that. You said that.

Q. You do not agree with me?

A. No, I do not.

Q. It would be impractical or improper to say that the two needle overlap——

A. In fact we are making them now with four needles.

Q. Let me ask my question, please. It would be improper to say that the two needle lap is preferable to the four needle lap because it makes a less bulky suture?

A. That is what you say; not me.

Q. You do not agree with that statement?

A. No.

Mr. Darby: That is all.

Redirect examination.

By Mr. Howson:

Q. Mr. Struve, when Mr. Darby was speaking to you [fol. 112] about the attachments that you procured from the Textile Machine Works, and I am referring now to the attachment with the reverse motion, and you have testified that you first started to get those some time in 1927, I want to know when those attachments were furnished to you by

the Textile Machine Works, were they furnished as complete attachments or simply parts?

A. They were furnished as complete units.

Mr. Howson: That is all.

(Witness excused.)

PAUL KROENER, called as a witness on behalf of the plaintiff, being first duly sworn, testified as follows:

Direct examination.

By Mr. Shaw:

The Witness: I am 32 years old; I am living at 1527 Garfield Avenue, Wyomissing, but I am employed as the sales representative of the Textile Machine Works. I have been employed by Textile Machine Works about fifteen years. Before I became sales representative I had been employed as a draftsman and was finally foreman of the department of knitting machine information. I have been in the division of knitting machine information approximately ten years,—since August, 1925. That is a division of the engineering department.

[fol. 113] Q. What were your duties in that division of the engineering department with regard to the products of the company? In other words, were you in any way familiar with the products of the company that were shipped out from time to time?

A. Yes, sir. I received the orders and scheduled the products for machines and attachments, and so forth; routed them through the shop and checked them off when they were shipped. I had charge of books showing the receipt of orders and the shipment of machines from time to time. I had charge of our order books; open and closed orders. By "closed order books" I mean completed orders; orders that have been shipped.

I am familiar with the attachment made by the Textile Machine Works called at times the reverse motion attachment. I am shown page 3 of Plaintiff's Exhibit 32, and asked what that shows. I will say that that is a reversible reinforced selvage attachment. The majority of the reverse motion attachments which I sold were like that shown in that photograph.

I have prepared a compilation showing month by month shipments of the reverse motion attachments from the time of the first sale until I left the knitting machine information division.

The time that I changed from one division to another was the first of this year. I produce the compilation to which I have referred.

Mr. Shaw: Witness produces compilation which I ask to have marked, and offer in evidence as Plaintiff's Exhibit 36.

(Marked Plaintiff's Exhibit 36.)

The Witness: The date of the first shipment of the attachment that I have identified was in August, 1927. The total [fol. 114] number of sales of this attachment to January 1st, 1935, was 6,790. The sales of the attachment were made both independently of the machine and with machines.

As to what the practice was with regard to the use of the attachments on the machines I will say that practically every machine was equipped with that attachment.

The records show with regard to the length of time when the machines were sold with the attachment as follows:

I believe the last machine sold without the attachment was in about the middle of the year 1930 or 1931, and that machine incidentally was shipped out of the country; it was an export machine. As to what had been the practice of the company before that time, I will say that the majority of the machines before that time were also equipped with the attachment.

Q. Can you state the number of attachments that were sold between August, 1927, the date of the first sale, and April 17, 1928, independently of the machine itself?

A. I believe it amounts to about 410. Between the same dates I believe 184 were sold with machines.

Considering the early months after the attachment was put on the market, the geographical distribution of the shipments were as follows:

At first I believe the attachment went in and around Reading, Philadelphia and the vicinity and they gradually spread. I notice that September they were also in and around Philadelphia, whereas in October they started to spread to North Jersey, and in November we shipped the first attachment to the South. They went to North Caro-

lina. Incidentally we shipped the first attachments to [fol. 115] Canada that month. In December we shipped the first attachments out into the West. We also have continuous shipments to Philadelphia and Reading and also some to the South and North Jersey. That continues into January, February, March, April and May.

Mr. Shaw: You may cross examine.

Cross-examination.

By Mr. Darby:

Q. Do your records show what each sale consisted of?

A. As a unit, or you mean——

Q. What the equipment consisted of?

A. The equipment consists of an attachment.

Q. Does that include the rocker movement, or do you know?

A. I would not know the price of it and the price would inform me whether it would have a rocker motion or not.

Q. Could you tell which of the sales listed on this exhibit were the instances where you merely supplied the reverse movement actuating the members such as the additional pawl and the gear wheel?

A. Well, this list includes all the entire attachment; not only reverse motion. That is the entire attachment. That gives you a complete total of the number of attachments that are in use, irrespective of whether you supplied them as a unit or whether you supplied them as missing parts.

Q. To make sure that I correctly understand your exhibit, am I correct in understanding that the first attachment was sold on August 22nd?

A. I do not believe I mentioned any date. August in 1927.

Q. You did not mention any date here, but in the trial [fol. 116] in New Jersey you gave the date as August 22nd, 1927.

A. If I gave that date, that must have been correct.

Q. I see that you have sold a grand total of 1919 attachments before the patent in suit issued on May 21, 1929. Can you tell from your records how many attachments were sold during the month of May, prior to May 21st?

A. If I am not mistaken, I furnished you with that information on the last trial. Am I right or not?

Q. You promised to, but through the hurry in the completion of the trial I did not find it in the last record. I would like to have that.

A. We could get that information for you, I am certain.

Mr. Darby: I will try not to forget it this time.

Redirect examination.

By Mr. Shaw:

Q. Mr. Kroener, this compilation that you have prepared, do those figures represent units or attachments or parts that may be converted through mechanism into this attachment?

A. This is an entire attachment.

Q. And mere parts would not be included. That shows, in other words, the number of completed attachments shipped out as completed attachments by the company?

A. That is right.

[fol. 117] CHRISTIAN F. MEYER, resumed the stand.

Mr. Darby: If the Court please, in the cross examination of this witness I am going to first address myself to the first point that I mentioned; insufficiency of disclosure.

Cross-examination.

By Mr. Darby:

The Witness: I am familiar with the patent in suit. As to whether I am familiar with the abandoned application of which it purports to be a substitute, I will say that I have seen the abandoned application. I cannot say that I studied it very intensely. I have not read over the specifications of the abandoned application. I have examined the drawings of the abandoned application just superficially.

Q. I am concerned initially with the same subject that we covered in the New Jersey suit concerning the mechanism for actuating the reversely-threaded spindle for the patent in suit, and I direct your attention to Fig. 1 of the drawing of the patent in suit, and likewise to Fig. 1 of the abandoned application of which the patent in suit appears to be a substitute, and ask you if the drawings are the same?

Mr. Howson: I object, if your Honor please, to the reference to the abandoned application. The witness was not examined about the abandoned application. It is not in evidence and not in the case so far and the examination [fol. 118] that refers to it is not germane to the direct examination.

Mr. Darby: There is a lot in what Mr. Howson says if he is going to insist on that. If he insists on that objection I won't press it. I thought we could save time. I might say, of course, that the patent in suit on its face refers to the abandoned application and so while I recognize the possible force of Mr. Howson's objection, I don't think it is entirely controlling, but I will abide by your Honor's ruling.

The Court: Objection sustained.

Q. Will you please point out in the specification of this patent in suit the description of the mechanism for imparting movement to the pattern chain 70?

A. As much of the description as there is in the specification of that particular arrangement is on page 3, beginning at line 112:

"To cause selective engagement of the pawls 25 and 26 before referred to, and thereby determine the direction of rotation of screw-shaft 11, I preferably employ as shown, a second pattern chain 70, to which step-by-step movement is imparted by the operation of cam 35a on a lever carrying the pawl 71 (Fig. 1) to impart movement to the ratchet wheel carrying the pattern chain aforesaid having studs 72 operating a spring-pressed lever."

Q. But that, I believe you agree with me, is the only description in the specification of that mechanism, is that right?

A. That is true.

[fol. 119] Q. Will you please refer to what mechanism is shown in the drawings for accomplishing that purpose. Refer first to Fig. 2, which is a plan view of the machine, is it not?

A. That is true.

Q. No mechanism whatever is shown, is there?

A. None.

Q. Figs. 3, 4 and 5 show no mechanism for that purpose, do they?

A. Figs. 4 and 5 have nothing to do with that whatsoever, but Fig. 3 shows part of the mechanism.

Q. Which is what?

A. It shows the shift rod here.

Q. The shift rod?

A. The shifter.

Q. The shifter rod 40?

A. That is right.

Q. And that shifter rod 40——

A. Appears in Fig. 2 (indicating); 40 and 41.

Q. 40 and 41 in Fig. 2?

A. Yes.

Q. But that shifter rod is not connected between the main shaft 5 and the chain 70 in any respect, is it?

A. Not in that view, no.

Q. Nor is the machine in Fig. 2?

A. Nor in Fig. 2, correct.

Q. The shifter rod merely shifts the position of a roller relative to a cam?

A. It appears to do so in that view, yes.

Q. There is nothing shown in Figs. 6, 7, 8, 9 or 10 relative to——

A. They are not related to that subject.

Q. Not related to that subject?

A. That is right.

Q. Now, we come to Fig. 1. There is shown in Fig. 1, unnumbered, unidentified and undescribed mechanism to the right of the roller or cam which is marked 35, is that right?

A. Is what right?

[fol. 120] Q. That there is shown to the right of cam 35 a number of levers, posts which are unidentified by reference numerals?

A. Partly.

Q. In what respect is my statement not right?

A. Because here is a numeral 71 (indicating on drawing).

Q. All right. Now, will you please describe to me from this drawing alone just how that works?

A. Yes.

Q. And the reason why I am asking you to do it from the drawing alone is because in your direct examination you described that operation from the drawing, Exhibit 15?

A. Would you perhaps prefer to have the enlarged patent drawing?

Q. Yes, surely.

A. You can follow that better.

(Drawing produced.)

A. (Continuing.) Now, in Fig. 1 the shifter 41 which is shown as the right hand shifter of the two shifters fastened to rod 42, there is a little angle which I might call a bracket and which is fastened to this shifting member. The top of that bracket, the vertical part of that angular bracket carries the fulcrum of a lever, the short end of which is extending over to the cam 35a, that is the active cam of the attachment, of the shifting device there, while the other end, the longer end is extending to the center of a connecting rod which goes in vertical direction—the shorter connecting rod there.

Q. This one (indicating)?

A. That one, yes. And on the top of this connecting rod is the—the top of that connecting rod is fastened to the [fol. 121] lever which carries the pawl 71, that being the pawl which gives a rotating motion to the chain 70 with its buttons 72.

When the shift rod 42 shifts, the small extending end on the left hand side of the horizontal lever comes under the active cam, is depressed by that active cam and naturally the other end goes up and, with it, takes the vertical rod and moves the pawl forward. In that way the motion is supplied to the chain ratchet.

Q. Then, as I understand you, you have a long rod here, unnumbered, fulcrumed about a pivot point very near its end?

A. Correct.

Q. Is that right?

A. That is right, yes.

Q. And what is this device out here under this rod that you refer to as standing vertical?

A. That is merely a support for the end of that lever; the same as many supports of that kind are provided in such constructions.

Q. And the device works, according to your description, by this rod 42 moving to the left?

A. Right.

Q. Carrying with it those two arms, 40 and 41, which brings the end of this long unnumbered rod under a cam surface, 35a?

A. Correct.

Q. Which rocks it about this very short pivot point?

A. Yes.

Q. And which, incidentally, has thrown this rod off its support, is that right?

A. As soon as it begins to depress it, it moves it off its support.

Q. But it is drawn to the left, too, isn't it?

A. Somewhat, yes, that is right.

Q. And in consequence this rod, the vertical rod you have referred to, is supposed to move to the left and forward [fol. 122] at the same time, is that right?

A. Well, not exactly at the same time, no.

Q. Well, it has to move to the left when the rods 40 and 41 move?

A. It has almost completed its movement to the left before it is elevated.

Q. It must move to the left and forward, must it not?

A. A very short period, yes.

Q. And then you say this pawl rotates the gear wheel on the chain 70?

A. That is what I say, yes.

Q. That description is not contained in these specifications, is it?

A. Not as fully as I made it, no.

Q. It is not contained at all.

A. Part of it. That is to say that motion is imparted from the cam shaft to the pawl.

Q. And you testified as a witness in the New Jersey suit, did you not?

A. I did.

Q. And you heard the testimony of the plaintiff's expert, Mr. Dahn, in that case?

A. I did.

Q. And your explanation here given differs from the explanation he gave there?

Mr. Howson: I object, if the Court please. It is a comparison with another witness——

The Court: Yes. Objection sustained.

Mr. Darby: I submit, may I not be entitled to show that this theory of operation is different from the theory of operation that was advanced in the New Jersey suit?

The Court: You can ask him whether it differs from any-
[fol. 123] thing he said before but I would think whether it is different from something somebody else said makes no difference. What your expert said——

Mr. Darby: No. His expert; the plaintiff's expert.

The Court: It makes no difference what some other witness may have said. If he made any statement in conflict with what he says now, you have a right to show it.

Mr. Darby: No, it was not his statement but he is making a statement which is contrary to the position that was taken by the plaintiff in the prior suit.

Mr. Howson: No; no, I beg your pardon.

Mr. Darby: By the plaintiff's expert in the trial of the suit.

The Court: That is not the way to show it.

By Mr. Darby:

Q. We will go a step further, Mr. Meyer. I think that you have testified that it is absolutely necessary in a device of this kind for the shaft 5 to move to the right during narrowing operation?

A. Yes, I testified to that.

Q. And the patent points out the necessity for that in this, beginning at line 63, page 4:

"The purpose of preventing operation of the screw-actuating means at this time arises out of the fact that if such means should happen to operate during narrowing the sinkers would cut off the yarns at the fabric and so cause [fol. 124] press-offs and seconds."

A. I testified especially to that, yes.

Q. Do you agree with that statement?

A. Yes, indeed.

Q. Will you refer to Fig. 1 again. First, let me ask you this: if shaft 5 was moved to the right as shown, the roller on cam 45 would fall off the cam?

A. As shown it would, yes.

Q. Likewise the roller on the cam 51 would fall off of the cam?

A. Correct.

Q. Likewise the roller on cam 14 would fall off, would it not?

A. Also correct.

Q. Likewise the roller on the right hand cam 14 would fall off?

A. Yes.

Q. With the result that when the rod 5 was shifted back to the left or was intended to be shifted back to the left, it would be impossible to move that to the left as shown, isn't that correct?

A. That is correct.

Q. So that as shown the device is absolutely impractical and inoperative—as shown, is that right?

A. As shown here, yes. That is right.

Q. I will now go a step further. If the shaft 5 is shifted to the right for the purpose of preventing the actuation of the reversely-threaded spindle during narrowing, the cam surface 34a would come under the roller which rests on it, wouldn't it?

A. It would.

Q. What would happen?

A. The device would work.

Q. That is, the spindle itself would rotate, wouldn't it?

A. Correct.

Q. With the result that as shown it would accomplish [fol. 125] the very thing which, from a practical viewpoint, you must avoid?

A. With the reservation as shown I agree with you.

Q. Likewise if your theory of operation of chain 70 is correct, if the cam shaft 5 were shifted to the right it would bring the cam 35a over the end of this short portion of the rod—the long rod that rests on the support, and cause actuation of the chain 70, is that correct?

A. Partly, yes. Not unless a button would happen to be there at the moment.

Q. It would cause actuation of the chain 70?

A. Yes. Pardon me, that is correct.

Q. It would cause actuation of the chain 70?

A. That is right.

Q. So that as shown, if I constructed a machine just as shown in that drawing, could I produce a workable, practical device?

A. If you would construct a machine just as shown in the drawing you could not make anything at all. You could not even knit.

Q. The patent shows and describes the undercut type stop, does it not?

A. It does, yes.

Q. That is the only type of stop which is shown?

A. Right.

Q. And the undercut type of stop is undercut so that when the carrier rod hits the full part, the stop racks upwardly a little bit and permits the carrier to travel into the undercut portion?

A. Correct.

Q. For the purpose of making a floating loop?

A. Correct.

Q. That is the herringbone type of suture?

A. Yes.

Q. That is an open suture?

A. Yes.

[fol. 126] Q. Does this patent show or describe any means for lifting that stop; either of those undercut stops?

A. Not in the drawing.

Q. In the specification?

A. It refers to it in the specification.

Q. Show me where, please?

A. Now, here I would start at page 2, line 92:

"The special rod-stops 7, 7 (see Fig. 1) employed in my novel attachment, act in a manner similar to the action of the well known 'Split-foot' stops heretofore employed in making split seam work, which stops however merely oscillated and did not travel lengthwise of the machine. In Figs. 3 and 4 of the drawings the stops are shown as having undercut portions at 10 which are desirable for split-seam work. My invention, however, is not limited to the use of these specific stops for this specific purpose but they may be used for all purposes for which stops are used."

Q. My question, Mr. Meyer, was, is there anything in the specification that describes how these stops can be lifted out of action?

A. No, not how. It only gives an indication that they are intended to be so lifted out.

Q. And what you have read is the basis on which you read your belief that there is an indication that it is intended they be lifted out?

A. Not the only basis.

Q. Well, give me all of it. What other bases have you in the specifications?

A. The reference to the old well known split sole attachment.

[fol. 127] Q. You read that.

A. Which, as I described here yesterday, is provided with well known means in the art for over thirty years to lift such stop out of contact with the cam and use either as a rocking stop or stationary stop.

Q. What I am trying to get from you, Mr. Meyer, is a basis in this specification other than what you have read.

A. This very quotation right here. Mr. Schletter refers very plainly to it. He says, "similar to the action of the well known split-foot stops."

Q. That is your basis for your belief that he intended to use removable stops, is that correct?

A. I did not say removable. He intended to use stops which could either be oscillated or stationary because that is old in the art and was always used with the split sole attachment as long as it was made; almost as soon as the machine was made.

Q. Have you given me every part of the specification on which you rely?

A. I believe so.

Q. You will agree with me, will you not, that it would be impossible to produce the stocking shown in Fig. 10 unless it was possible to lift out the stops, the rocking stops, out of operation?

A. No, I do not agree with you.

Q. You do not?

A. No.

Q. How are you going possibly to make a course below the design unless you remove the stops?

A. By using another carrier rod.

Q. By using another carrier rod? What do you do with the stops and the carrier rods controlled by them?

A. Well, we have no abutments on that carrier rod. It just passes underneath the stops.

[fol. 128] Q. Then, how would you take the carriers that knitted portion B out of action?

A. By removing the friction box.

Q. And just cut off the thread? You would have to cut off the yarn?

A. Will you kindly repeat that again. Perhaps I did not understand you right.

Q. As I understand it, you have got carriers working between stops which are moving back and forth in accordance with the design B or Fig. 10, is that correct?

A. That is correct.

Q. When you come down to the end of the design, the lower part of the stocking, they cease to function?

A. That is true.

Q. Is that right?

A. That is right.

Q. And consequently you have your carrier running the entire width of the blank?

A. That is the new carrier, the carrier which begins to knit at that point. That is true.

Q. In other words, you use another carrier at that point?

A. Yes.

Q. Rather than continue to use either the carrier knitting A or the carrier knitting C?

A. Oh, I must do so.

Q. And you would—how would you get out of action the stops which have controlled the rod and left the edge of the design?

A. There are two ways. One of them would be to put them out of action by disconnecting from their friction box, and another one would be by lifting the split-sole stops out of the way and removing them. The thread I would have to cut in either case.

Q. And the second way is the way it is done in practice, isn't it?

A. Yes, that is right.

[fol. 129] Q. Namely, lift the stops out of the way?

A. Namely, lift the stops, yes.

Q. In the patent as shown there are two separate pattern control motions shown?

A. Yes.

Q. One is the pattern chain 55 and the other is the pattern chain 70?

A. Correct.

Q. There are no other pattern chains shown in the patent, are there?

A. Right.

Q. What mechanism is provided in the patent for tilting the stops?

A. There is no mechanism shown in the patent.

Q. What mechanism is provided on the commercial machine of the plaintiffs for tilting the stops?

A. Two hooks which are on the outer end of the cam levers and are used to put those cam levers out of contact with their respective cams, in that way eliminating the oscillating motion of the special stop 7. I imagine the court knows just what I am referring to.

Q. Does not the patent show means for rocking the stops so as to permit the splice—the delayed movement—into the undercut operation?

A. That is true.

Q. Referring to means for rocking the stops, of the undercut type, what is the means that are provided in the patent for that?

A. Perhaps I did not quite understand that. Means for rocking the stops?

Q. Means for rocking the stops so as to permit——

A. Why, there are connecting rods here and here (indicating on drawing) which are connected to certain cam levers.

Q. You mean connecting rods 16 and 16?

A. They are connecting rods 16 and 16 which are connected to cam levers.

[fol. 130] The Court: Which drawing are you looking at?

The Witness: Fig. 1, your Honor. (Continuing.) Which are connected to cam levers or rollers 15—15. These rollers are working on cams 14—14, and these cams give to those rollers an oscillating motion which, in turn, is transmitted by those two connecting rods 16—16 to a horizontal rod 17. Is that sufficient?

Q. No, go ahead.

A. This horizontal rod which, of course, participates in that oscillating motion is so arranged with openings in the special oscillating levers 7—7 which are passing loosely over these rods, so that while they are oscillating with the rod at the same time can be moved to the right or to the left with the advancing of the motion.

Q. Do both of the stops rock at the same time?

A. Naturally, yes.

Q. And they rock at the end of each course, do they not?

A. Yes.

Q. So they rock together and at the end of each course and I assume that that is accomplished by shifting your cam on which the levers 16—16 operate, is that right?

A. Certainly.

Q. That movement is not controlled by the pattern chain at all, is it?

A. That movement is not controlled by the pattern chain, no.

Q. So that it would be quite erroneous for me to say that this rocking movement of these stops is effected by pattern control means?

A. That is not effected by pattern control means, unless you consider the turning of the cam such pattern control means. In a certain sense they are.

[fol. 131] Q. It certainly would not be pattern chain control means?

A. Certainly not.

The Court: Well, they owe all their movement to the cams that control 16?

The Witness: That is right, your Honor.

Q. I want to get some information now generally apart from this patent. A straight, flat knitting machine is used for manufacturing other material than stockings, of course?

A. Surely, yes.

Q. They manufacture underwear, for example?

A. Yes.

Q. And in machines of this character it is customary to narrow just like you would narrow in producing stockings?

A. In some of them, yes.

Q. And it is likewise customary to widen as well as narrow, isn't it?

Mr. Howson: Mr. Darby, are you going into the art, or——

Mr. Darby: No.

Mr. Howson: You are going beyond the direct examination.

Mr. Darby: I am not going into the art at all. We will put it this way: on its face it is going into the art but for no vicious purpose, but if you have objection to it——

Mr. Howson: Well, as long as you are not going to be vicious——

Mr. Darby: All right.

Mr. Howson: If you get vicious, I will handle it.

Q. With that subject again deferred, I will take you back to the patent: in the manufacture of a fabric in which the [fol. 132] stops are tilted with undercut portions, they are tilted simultaneously at the end of each course of the type of suture as made?

A. An open split. A crow-foot split or herringbone split, whichever you prefer.

Q. They would not make any other type of suture, would they?

A. Oh, yes.

Q. With them rocking simultaneously?

A. Not with them rocking that way, no.

Q. The type of undercut stop employed by Schletter in his patent and illustrated by him is the same type as is illustrated in the Textile's book, "Full-Fashioned Knitting Machine" which is in evidence as Exhibit 6, as illustrated on page 54, is that correct?

A. That is correct to a certain extent. It depends, Mr. Darby, what you mean when you say "that type." As far as the rocking motion is concerned and the undercut, it is the same.

Q. That is what I meant, and I am willing to confine it to that. The undercut portion of that stop with the added traveling of the carrier is absolutely necessary to produce the herringbone split, isn't it?

A. It is.

Q. I would like to have you examine this figure and then I will ask you if that is what you mean by a herringbone split (exhibiting to witness)?

A. It looks like it, yes. It is a very imperfect drawing, but I think it is.

Mr. Darby: May I have this marked for identification.

(Marked Defendant's Exhibit A for identification.)

Q. And when the patent refers on page 3 at line 28 to the laying of the floats of the split seam, that refers to a [fol. 133] herringbone split suture?

A. It does.

Q. Now, when you float a thread such as you do in producing the herringbone split, as I understand, you can have the sinker noses all of the same length?

A. You can, yes, but you would not get a very perfect fabric.

Q. In order to be able to do it practically, you have the sinker noses of different lengths, isn't that so?

A. Not necessarily.

Q. Have you ever seen a machine equipped with sinker noses of the same length and produce a commercial product of herringbone?

A. I really could not answer that; not to my recollection, but I never looked for that.

Q. You have seen machines producing herringbone seam, haven't you?

A. Many years ago, yes.

Q. And they used sinkers of different lengths?

A. I must repeat, I don't know.

Q. You don't know that?

A. No, sir.

Q. Then you do not know of your own experience, that in order to produce a herringbone suture,—an open suture, that it is necessary to have alternate short and long nose sinkers?

A. I beg your pardon, Mr. Darby, I did not say that. I only said that I did not recollect having seen any in a machine.

Q. I hope you will bear with me. You must realize I am not as expert as you are.

A. I do realize that.

Q. I assure you I am not attempting to mislead you, of all people. Then your personal experience with producing [fol. 134] herringbone sutures has been so long ago, am I correct——

A. I think you are correct.

Q. (Continuing.) —that it would be futile for me to follow that line of inquiry now?

A. That is for my own practical experience,—my own view of it in a machine; but as far as the theory of it is concerned, that I can answer.

Q. Then theoretically is it preferable?

A. It is preferable but not absolutely necessary.

Q. Why is it preferable? That is what I was getting at; will you please explain the reason why?

A. Yes, sir, on account of the floating loop, it is not necessary but it is preferable that a sinker which is at the very position where that loop is formed, is somewhat shorter in order to draw less thread for that particular loop.

Q. In other words, it has a bearing on the question of tension on the thread?

A. Yes.

Q. And unless you adjust for the tension on the thread, you are apt to get too much tension at one loop and not enough on the next, is that correct?

A. You might and you might not; it depends on the individual case.

Q. But that is what they are afraid of?

A. That is the underlying theory, yes.

Q. Now then, if that underlying theory is correct, and if you want to make allowance for the difference in tension on the thread in making a herringbone suture, if you were going to use a diagonal herringbone suture, the alternative long and short nose sinkers would have to extend throughout the entire area in which you are altering the course of the suture, is that right?

A. Certainly. That is quite a common occurrence.

[fol. 135] Q. So that as a result, if you are going to make designs anywhere between the selvage edges of a stocking, you would have to have alternate long and short nose sinkers throughout the entire bed, is that right?

A. Yes, that is true.

Q. Now, would the use of alternate long and short nose sinkers be practical in producing sheer full-fashioned silk stockings?

A. Certainly. Why not?

Q. That are being produced today commercially?

A. Certainly.

Q. You are quite sure of that?

A. Yes.

Q. Positive?

A. Yes.

Q. Do you ever sell any machines, that is the plaintiff? Did you ever sell any machines with alternate long and short nose sinkers?

A. Yes, we did.

Q. When, how long ago?

A. That I cannot recall now.

Q. Since 1927?

A. Yes, since 1927.

Q. Producing stockings?

A. It produced stockings, absolutely.

Q. Do you recall to whom it was sold?

A. Oh, I beg your pardon. I must have misunderstood your question. Did you ask whether I ever sold them that way?

Q. Yes.

A. No, we did not.

Q. How long has it been since you have ever sold any?

A. Never, to my recollection.

Q. You never sold machines with alternate long and short nosed sinkers?

A. No. I misunderstood you, Mr. Darby.

Q. Are you familiar with the catalogue of your company?

A. Yes.

Q. I show you here a catalogue of the Reading Machine, [fol. 136] January, 1929,—the Reading Machine is generally referred to as the Textile, is that right?

A. That is right.

Q. That is Plaintiff's machine?

A. Yes.

Q. I call your attention to page 175 of the January, 1929, catalogue and ask you if it does not show on it both long and short nose sinkers?

A. Yes, it does.

Q. That is part of the equipment that you folks manufacture and sell?

A. Certainly.

Q. And you sell long and short nose sinkers for use in flat knitting machines?

A. If it is so desired.

Q. Do you ever equip them with the short nose, if you sell them?

A. No, those are made on special order.

Q. What are they used for, do you know?

A. Oh, for various purposes. Some use them on selvage —of course, that depends on the use these various manufacturers want to make of them. I cannot tell.

Q. They use them on a straight herringbone seam, don't they?

A. Yes, some of them do. All of them, practically, I guess.

Q. We will refer once more to the patent, Fig. 1: I call your attention to the roller 34.

A. Yes.

Q. Is that right?

A. Yes; you mean the cam.
Q. Cam 34; it has a cam surface 34a, is that right?
A. An active cam surface.
Q. An active cam surface 34a?
A. Right.
Q. And that cam is intended to act on the roller mounted on the shaft 32?
A. Yes.
Q. To lift up the arm 73, is that right?
[fol. 137] A. No, that is not right. It is to lift up another arm which moves the pawls.
Q. That is right.

By the Court:

Q. What is the number of that arm, sir?
A. 29 and the other——
Q. The other is not marked?
A. No, it is not.

By Mr. Darby:

Q. Now, there are two such arms, referring to Fig. 2, 29 and 29a, is that right?
A. That is right.
Q. That is referring to Fig. 2, 29 and 29a and the cam 34 and 34a which operates on one arm is duplicated for operating on the other arm, is that right?
A. Yes.
Q. It is shown best perhaps in Fig. 1. So that the cam surface 35a is similar to the cam surface 34a and is provided for the same purpose, namely the lifting of rockers of the shaft 32, actuating the arm 29 and 29a, is that right?
A. Yes.
Q. Now, I wish to refer to your commercial attachment. You have been familiar with the attachments put out by your company, as chief engineer since its first one, I presume, is that right?
A. That is right.
Q. Is the attachment illustrated in Plaintiff's Exhibit 33 like your present commercial attachment?
A. In principle, yes.
Q. What does this particular drawing illustrate,—the [fol. 138] first type of attachment you put out in 1927 or the type that you are putting out today?

A. The very first few attachments that we put out differed somewhat from those, in minor construction; but on the whole, this is the attachment that we have been putting out.

Q. That is what I want to establish. I want to establish in what respect,—it may not be important to you, but it might be important to me,—in what respect this drawing differs from the drawing of the machine which you put out in 1927?

A. In the respect that the slides 7 which are shown in this attachment were not present in the first attachment. Instead of that there was a solid rigid slide similar to the one shown in the Schletter patent.

Q. There is a rigid slide with an undercut portion?

A. No undercut portion.

Q. So the first attachment you put out in 1927 had stops without undercut portions?

A. That is correct.

Q. Were those stops tiltable?

A. Yes.

Q. Did they rock with each stroke of the machine?

A. No, of course not.

Q. They did not rock at all?

A. No, there was no necessity for that.

Q. Did they use the mechanism for actuating the gears, the ratchets, and the wheels of the reversely-threaded spindle which is illustrated in the Schletter patent?

A. I must again say I do not remember that.

Q. Did they use that just as it is shown there?

A. No.

Q. Did the attachment in 1927 use the lock, safety lock [fol. 139] device, that is employed in the Schletter patent?

A. I know what you mean. Yes,—we will understand each other——

Q. I am referring to this separate locking mechanism that you described in considerable detail, in Figs. 1, 11 and 12.

A. Not in the same construction, no.

Q. When did you change from the style of the stops that you first used in 1927, to the style shown in Plaintiff's Exhibit 33?

A. Oh, I should say about ten to twelve months after. I am not quite sure of the date.

Q. Was it before or after the defendant came on the market with its product?

A. It certainly was before that.

Q. You are sure of that?

A. I think so. I am not sure of it; I would have to look it up. I cannot remember.

Q. The stops employed in Plaintiff's commercial machine are very much like the stops employed in the defendant's machine, are they not?

A. They are very much so, yes.

Q. And if you did adopt it as you believe within eight or ten months after you first came out on the market, that was before May 1, 1929, is that right?

A. Perhaps I will have to modify that answer a little bit, Mr. Darby.

Q. All right.

A. When you say when "we did adopt it," I take it to be understood when it became standard; when we sent it out universally. This might have been that long or it may not have been that long. I am not sure of that, but we certainly put out these stops in isolated cases almost immediately after the attachment was brought on the market.

[fol. 140] Q. Then if I understand you now, your eight or ten months pertains to the time when you made it standard?

A. Pertains to the time when we made it standard.

Q. And in the commercial machines that you sent out from the very beginning, you only used one pattern chain for controlling the direction of rotation as well as the actual rotation, is that right?

A. We did, that is right.

Q. Instead of the two pattern chains as shown in the Schletter patent?

A. That is right.

Q. I think you testified that you do not use the roller shift in your commercial attachments; that you do not use the roller shifts for locking devices for controlling rod 42?

A. That is correct, yes.

Q. As shown and described in the patent. And of course, you don't use the same mechanism of cam arrangement relative to the camshaft 5 as illustrated in the patent?

A. The cam arrangements are very similar. The shifting mechanism is different. The mechanical details are different.

Q. And your attachments were provided with rocker motions?

A. Yes.

Q. And no rocker motions are shown or described in the Schletter patent?

A. Well, by "described" you mean——

Q. I mean not described as such.

A. That is right.

Q. How long have you been familiar with the defendant's attachment?

A. I think almost since it came out.

Q. The defendant's attachment came out about 1927 or 1928?

A. Oh, no; in 1928,

Q. The defendant's attachment with respect to the de-
[fol. 141] tails that I have reviewed with you differs from what is shown, as shown in the Schletter patent in the same respect that the Textile Machine attachments do, is that correct?

A. I agree with you on that.

Q. Do you recognize these attachments as attachments which are being manufactured by your company at the present time and offered for sale?

A. Yes.

Q. These attachments are pictured on the advertising leaflet produced by your company?

A. Correct.

Mr. Darby: May I have it marked for identification?

(Marked Defendant's Exhibit B for identification.)

Q. Do you recognize this attachment as shown on page 11 of the Knit Goods Weekly of August 5, 1935, as an attachment produced by your company?

A. Yes, sir, I do.

Q. You also recognize that as an advertisement by your company of that attachment?

A. By the fact that it bears the name of the company; I have nothing to do with advertising matter.

Q. You also recognize the attachment shown?

A. Yes.

Mr. Darby: I ask to have that marked for identification.

(Marked Defendant's Exhibit C for identification.)

[fol. 142] Mr. Darby: Now, Mr. Howson, I intend to go so far in the prior art in the cross examination of the witness' statement as pertains to the direct examination concerning the patent on that machine.

Q. I think you testified that the flat knitting machine was first created in England by Mr. Cotton.

A. Pardon me; the Cotton machine.

Q. The Cotton machine?

A. Not the flat machine.

Q. I think historically speaking you will agree with me that the machine until prior to the war was mostly developed, largely in Germany?

A. That is true, yes, sir.

Q. Will you agree with me that it was not until after the outbreak of the war that your company made sales of substantial numbers of the machines?

A. No, I do not agree with you on that.

Q. You made substantial sales prior to the operation of the war?

A. Those sales that we made before the war were very substantial to us.

Q. But they were more substantial in number since the outbreak of the world war?

A. Naturally, sure.

Q. In referring to this Defendant's Exhibit 6, of the equipment shown in there, that was of equipment available on the market before the Schletter patent was made available to the market by your company, was it not?

A. It was published in 1920.

Q. And it illustrates, in good part, equipment which you had been selling since 1914?

A. Partly; I suppose you are right; I could not say that unless I looked it up.

[fol. 143] Q. For example, the narrowing mechanism illustrated on page 42, was mechanism that had been supplied with machines sold by you since the time of the war, beginning of the war, 1914?

A. That is right.

Q. That narrowing mechanism consisted of a reversely-threaded spindle which you could rotate in either direction as you desired?

A. Within certain limitations, yes.

Q. And what are those limitations?

A. I have given a very full description of that yesterday.

Q. In the mechanism shown here, the one ratchet has twice the number of teeth as the other ratchet?

A. That is correct.

Q. One of the limitations you refer to is that it rotates two needles and comes back one?

A. And that is all.

Q. And that is all?

A. That is the limitation.

Q. If you want to rotate two needles and come back two needles, would you, as a mechanic know how to do it?

A. No.

Q. You would not?

A. No.

Q. By merely increasing—putting the same size ratchet on the spindle as you have on the other spindle, wouldn't that do it?

A. No.

Q. Why not?

A. Because the movement of that particular pawl is adjusted in such a way that it is only sufficient to move it to the length of the smaller teeth.

Q. Do you know as a mechanic, if you wanted to you could move two needles forward and two needles backward?

A. I would not say that offhand.

Q. You would not know how to move one alone?

A. One alone, certainly.

[fol. 144] Q. Would you, as a mechanic, know how to move alternately one in one direction and one in the other?

A. I would not, because I would have to depend exactly on the same motion. They are operated from one and the same shifting gear.

Q. You would not know — to cause the spindle K to move either in one direction or the other direction at will independently of the other, from the mechanism shown here for moving in one direction two needles and one back one needle?

Mr. Howson: If your Honor please, I object to the question. I do not see where it is leading. Certainly I did not ask the witness to make any changes in these devices. This was simply referred to him in his explanation of the machine. The whole thing is hypothetical and it is not germane to the direct examination.

Mr. Darby: The witness himself emphasizes the fact, if the Court please, that this was limited to this one thing and no more. Now, I want to find the limitations, if any,

that the witness had in mind when he made the statement as emphatic as he did.

The Court: The objection will be sustained.

Mr. Darby: I note an exception.

[fol. 145] Christian F. Meyer, resumed the stand.

Cross-examination Continued.

By Mr. Darby:

Q. Mr. Meyer, will you refer to page 2 of the specifications of the patent in suit, which says, beginning at line 83:

"My invention, among other things, relates to special stops for these rods 6,6,6,6, affecting the yarn-feed movements thereof, and for simplicity of showing I have indicated in the drawings only the rods themselves, it being understood that they carry thread guides and abutments such as shown in Figs. 11 and 12 and perform their usual functions as heretofore."

Now, Figs. 11 and 12 do not show any thread guides or abutments, do they?

A. No, it does not.

Q. Figs. 11 and 12 relate to something entirely different from that as described, right? They relate to this automatic locking mechanism, isn't that so?

A. That is correct.

Q. And have nothing to do with the threads or abutments. Also note at page 2, line 120:

"Stops such as herein illustrated are used for making spliced or plated figures on a plain fabric and for split seam work, the split seam stops being undercut as in Fig. 4 and the others not undercut as in Fig. 16."

[fol. 146] There is no Fig. 16 in the drawings, is there?

A. No, there is not.

Q. As a matter of fact, there is no stop shown not provided with undercuts in the drawings, are there?

A. No, there are not.

Q. This patent was acquired by your company in or about November, 1929, subsequent to the issuance of the patent in suit, wasn't it?

A. That is right.

Q. I will refer to the drawing of the Hofmann attachment, the Hofmann attachment being the one that was before the New Jersey court?

A. Yes.

Q. I will refer to it if necessary, but I don't believe it will be necessary for this question. You are familiar with it, are you not?

A. I am familiar with it, yes.

Q. The Hofmann attachment could make only a four-needle lap, isn't that correct?

A. Yes.

Q. And no mechanism is shown in the Hofmann attachment or provided in the Hofmann attachment that will enable it to make a two-needle lap split, is there?

A. You mean on a curved line?

Q. Yes.

A. No, there is not.

Q. The defendant's attachment here before the Court makes a two-needle lap split on a curved line, doesn't it?

A. It does not.

Q. It does not?

A. No.

Q. How about on a straight line; Hofmann can make a two-needle lap split on a straight line?

A. Anyone can do it.

Q. The defendant likewise can make a two-needle lap split on a straight line?

A. Yes.

Q. You have previously testified on cross examination [fol. 147] that the type of suture made by the structure shown in the patent in suit, is a herringbone suture, that is correct, isn't it?

A. Amongst others, yes.

Q. Didn't you testify, as shown in the drawings, it only makes a herringbone split, isn't that a fact?

A. No, I did not testify to that fact.

Q. Can the structure shown in the patent in suit make anything but a herringbone split?

A. Certainly it can make another, a closed split, a shadow clock work, any reinforcing work—anything you want.

Q. Without the change of the mechanism as shown in the patent?

A. Without change in the mechanism in the patent.

Q. Then, it is your testimony that the structure shown in the patent in suit without alteration can make a type of split other than the herringbone split?

A. Absolutely.

Q. The defendant's machine cannot make a herringbone split, can it?

A. No.

Q. The herringbone split with the floats is the type of split which is described by the patentee in the specification as being made by his structure, is that correct?

A. I say again, amongst others, yes.

Q. Referring once more to the structure of the patent, where does the chain 70 if actuated in the manner that you have described, move with reference to the time of movement of the reversely-threaded spindle 11?

A. You mean when does the chain move? It moves at the same time when the spindle is giving the turn.

Q. In other words, the selective chain control 70 moves at the same time that the reversely-threaded spindle 11 [fol. 148] moves to vary the distance between the nuts?

A. Yes, the chain, yes.

Q In the catalogue of your company which you identified yesterday at page 186-31, appears the following statement:

"In the manufacture of full-fashioned stockings having a pointed heel reinforcement or reinforcement in which the edges make an angle with the wales of the fabric, it is absolutely essential that means be provided on the machine to furnish a variable rocking motion to the regulation shaft as the reinforcement is widened or narrowed. If this is not done, the fabric will be drawn or puckered wherever the reinforcing thread is added. Where no rocking is done the loops are not large enough to accommodate an extra thread and thus resulting in an unsatisfactory fabric."

Is that a correct statement?

A. Yes, that is correct.

Mr. Darby: May I have marked for identification page 186-31 of the Plaintiff's Parts Catalogue of 1930.

(Marked Defendant's Exhibit D for identification.)

Q. Does the patent in suit show any rocking movement or mechanism for it?

A. Not that type of rocking movement in that paragraph that you have just read. That is not shown.

Q. Is it mentioned in the specification?

[fol. 149] A. It is not mentioned either. It has nothing to do with it.

Q. Are clocks made by a split suture, that is shadow clocks made by a split suture as distinguished from spliced sutures commercially practicable?

A. Why not? They are.

Q. You say they are?

A. Yes.

Q. Have you ever known of clocks made by split suture rather than spliced suture being marketed?

A. Not to any extent, no.

Q. Have you known of them being ever marketed by anyone?

A. Marketed? No.

Q. They are not marketed?

A. No.

Q. Do you know why not?

A. Very likely because they are very high priced. It is a slow process.

Q. Can the patent in suit in the structure illustrated in the drawing make a split design unsymmetrical?

A. No.

Q. In other words, as shown in the arrangement in the patent in suit, the steps of movement is always the same?

A. Always together, yes.

Q. That is, the movement of the stops and the spindle is always the same?

A. Yes.

Q. You stated in your direct examination that four-needle wide lap sutures are objectionable; will you state why?

A. I am quite surprised at that.

Q. I think it is on page 45. I will correct my statement. You stated at page 45 of the testimony:

"When the material is a little heavy and these four loops [fol. 150] lie on top of each other, it gives rather a heavy joint or seam there and therefore sometimes an open split is made in which the loops are inter-knitted somewhat differently."

A. That is right.

Q. Do you consider a heavy four-needle overlap to be objectionable in the modern sheer stockings?

A. There is no heavy seam in the modern stocking, because heavy yarn is not used any more.

Q. You do not consider a four-needle lap suture objectionable in the modern sheer stocking?

A. No, not at all.

Q. Do you consider a herringbone type of suture—a plain herringbone type of suture on a bias to the wales commercially practical?

A. Yes.

Q. Do you know of its having been used commercially?

A. I do not.

Q. When a straight herringbone is made at a bias to the wales to form a design, drop stitching holes are produced, are they not, at the point where the suture is at a bias to the wale?

A. No.

Q. The plaintiff company never sold an attachment which made a herringbone type of suture on a bias to the wales, did it?

A. They did not.

Q. Why not? Is there any reason for it?

A. Yes.

Q. What was the reason?

A. Because the herringbone split had been out of existence before we brought the attachment out. It was not made any more anywhere.

[fol. 151] Q. Is there any good reason why the herringbone split had gone out of existence?

A. Yes.

Q. Why?

A. It slowed down the machines; you have to run the machine slow to get a good looking herringbone.

Q. Why is it necessary to run the machine slow?

A. Because the overlap of the needles, that is, the movement of the carrier to go over has to be very accurate in its movement to produce the additional forward movement of the carrier, and it has to be slowed down because if produced too fast, they produce drop stitches.

Q. Prior to the time you turned out the attachment had you ever seen herringbone split at an angle to the wales?

A. Never.

Q. Is there any practical reason in addition to the reason you have stated against herringbone splits at all, why they are not done, to your knowledge?

A. To my knowledge there wasn't any attachment that would have enabled the manufacturer to make it.

Q. The type of suture that is being used in the commercial market today, is a closed two-needle lap, is that right?

A. Not necessarily.

Q. What other types are being used today?

A. Four needle or two needle or both, a combination.

Q. A four needle in the cradle sole?

A. Yes.

Q. The defendant's structure can make a two needle lap split on a bias to the wales, can it?

A. No, it can not.

Q. It can not?

A. No.

Q. Will you explain why the defendant's structure can not make a two-needle lap split?

A. Along the line?

[fol. 152] Q. Along the line according to the bias to the wales.

A. For the reason that this is a reversely-threaded spindle and both sides are moving at the same time—must move at the same time. For that reason, when you move the one inwards, you also move the other one inwards. Then when you get to the other side you have lost these two needles that you are going to overlap, you understand, and then on that side you are not getting a binding and there will be a little pinhole there that will alternate according to the direction in which you shift.

Q. Now, will you please refer to the photographs of the defendant's structure—the actual structure which is in evidence as Plaintiff's Exhibit 2, and state whether your last answer would be correct with respect to structures shown there, or in the alternative, state whether or not the actual physical machine of the defendant will make a two-needle lap on a curved portion of a bias to the wale?

A. No, I don't think so.

Q. You have studied these photographs?

A. I saw the machine and the photograph as far as this attachment is concerned, yes.

Q. Were you familiar with the patent affairs of your company in 1931?

A. Yes.

Q. Were you familiar with the patent that was applied for in 1931 and obtained in 1933 in the name of Gottlieb Bitzer for carrier rod control for split seam fabric?

A. Yes, I am.

Q. Is this the patent?

Mr. Howson: I object, if the Court please. It has nothing to do with the issues in this case.

[fol. 153] Mr. Darby: The witness has testified he was familiar with the patent affairs of the company and he was in charge of them, and I merely want to have this witness identify this patent. I will have a copy marked for identification.

The Court: It is identified under your stipulation, is it not? The stipulation is that copies may be received with the same force and effect as certified copies. It proves itself, does it not?

Mr. Darby: I was doing it out of an abundance of caution. I did not understand the stipulation goes so far as to stipulate that it is owned by the plaintiff company.

Mr. Howson: Is that what you want to ask this witness?

Mr. Darby: Yes.

Mr. Howson: I have no objection to that.

Mr. Darby: That is the patent. Now I am going one step further.

The Witness: That is the patent.

Mr. Darby: May I have it marked for identification, please?

(Marked Defendant's Exhibit E for identification.)

Q. I will go a step further and ask the witness if that patent does not show and describe mechanism for an attachment to enable procuring two needle lap?

A. Yes, it does.

Q. Two needle lap sutures at an angle to the wales of the stocking?

A. Correct.

[fol. 154] Q. And is it not a fact, Mr. Meyer, that beginning in 1931 or thereabouts that the structure of the Bitzer patent was included in all the attachments that you sold?

A. That is not a fact; no.

Q. What part of that statement is incorrect?

A. Some of them were sold with that attachment but a very small percentage.

Q. When did you start to sell the attachment with the Bitzer mechanism?

A. That I would have to look up. I could not recollect from memory.

Q. It was subsequent to 1929?

A. Yes, sir.

Q. And today are not all of the attachments that you sell provided with the Bitzer mechanism to obtain two needle lap?

A. Certainly not.

Q. All of the attachments that you sell are provided with some mechanism for obtaining a two needle lap and suture?

A. They are not.

Q. Then, as I understand it, some attachments that you sell are not provided with means to make a two needle lap?

A. The greater part of it.

Q. They are provided with means to make a four needle lap?

A. Correct.

Q. But they are not provided with means to make a herringbone suture at an angle to the wales?

A. No, sir.

Q. I call your attention to the aluminum model, Plaintiff's Exhibit 11 for identification, and ask you whether insofar as the reversely-threaded spindle and the nuts thereon and the stops carried by the nuts are concerned, that structure is identical with the structure shown in the drawings [fol. 155] of the Schletter patent?

A. Substantially so, yes.

Q. You also said yesterday that the structure as shown in the patent could make the design illustrated in Fig. 10 of the patent?

A. I did say that, yes.

Q. Will you illustrate on this model how that design could be made without taking the stops off of the machine?

A. You must be a little more specific in that question, Mr. Darby.

Q. Can you illustrate on this model how the design of Fig. 10 can be made below the pointed end of the design (indicating on Fig. 10)?

A. Yes, I can. You take it for granted that the design can be made by the application of these stops?

Q. Down to that point, yes.

A. Yes. When you come to that point do you want me to show you how that can be done without taking this out of operation?

Q. Yes.

A. When we come to that point I take these carrier rods which had been working down to the point where the design ends out of operation by disconnecting them from their friction box. Then I take this carrier here (indicating) and you will notice that carrier runs over the full width of the section without any alteration——

Q. Do you have to stop the machine to do that?

A. Yes, naturally.

Q. You stop the machine?

A. Yes.

Q. And take off the friction box which controls the movement of the carrier which is stopped by the two stops, is that right?

A. That is right.

Q. And it is only the friction box on the carrier which [fol. 156] travels between the two stops?

A. It is not the friction box. It is the carrier rod.

Q. It is the friction box on that carrier rod that is the only one you take off?

A. No. I have to take off the ones that are operating; the carrier rods that are marking the design naturally. I say naturally disconnect these carriers which have been in operation to that point from their friction boxes and I do connect this rod (indicating)——

Q. How many carriers do you have to take the friction boxes off?

A. Three carriers.

Q. And you stop the machine for that purpose?

A. Yes.

Q. And what happens to the thread carriers on the rod—on the carrier rods—from which you have taken off the friction boxes?

A. We have to let them stand idle.

Q. Stand idle?

A. Yes.

Q. So that they are standing idle between the selvage edges of the stocking being knit for the rest of the operation of producing Fig. 10?

A. That is true, yes.

Q. And you have got another thread carrier that swings back and forth over that idle carrier throughout the rest of the operation?

A. Yes.

Q. Is that practical in a commercial machine?

A. That is not the usual way to do it, if you ask me that.

Q. Is it practical in a commercial machine?

A. It is not very practical, but it is possible.

Q. You, as a skilled engineer, would not permit that operation in your factory?

A. If I were compelled to make it in that way, certainly.

Q. When you leave this idle thread carrier between the [fol. 157] selvage edges, do you cut the thread?

A. Yes, you have to cut the thread.

Q. I call your attention to Plaintiff's Exhibit 17. Can you state what kind of a suture is in the diagonal part of the design?

A. The diagonal part of the design is a closed split suture.

Q. Would it be correct to describe that as a herringbone two needle lap?

A. Not this, no.

Q. That is entirely a closed suture?

A. A four needle closed split suture.

Q. Will you refer to the foot portion? What kind of a suture is that?

A. That is a two needle open split suture, in the straight portion of the foot.

Q. Two needle open split. That is what I have been referring to as a herringbone split?

A. Well, that is the same thing.

Q. Will you examine that suture again carefully, Mr. Meyer, in the leg portion, both inside and outside, to verify that that is a closed four needle lap rather than an open two needle with a float, a two needle lap?

A. On the diagonal?

Q. Yes. Do you see the float threads in there?

A. My statement is still the same.

Q. There are no floated threads on the herringbone in this suture?

A. No.

Mr. Darby: That is all.

Redirect examination.

By Mr. Howson:

Q. Mr. Meyer, you have described one way in which the device as shown in the model, Plaintiff's Exhibit 11 for identification, would be used in making the fabric of Fig. 10 of [fol. 158] the patent. State what, if any other ordinary way of using the attachment would be for making the same pattern?

A. The usual way which would be employed very likely in a knitting mill would be to take the stops 7 and remove them from the path of the abutments of the carrier rods, and then take these carrier rods and lay them out, as the expression is, that is, take them out of the way and use the additional rod for making the end of the stocking.

When I speak of lifting the stops so that they would be out of action, that is the ordinary procedure in a knitting mill and always has been.

Q. Mr. Darby referred you to page 186 of plaintiff's parts catalogue, Defendant's Exhibit for identification D. I call your attention to the statement to which Mr. Darby directed your attention and ask you to explain what, if anything, that has to do with the attachment that we are interested in here in this case?

A. That is the rocking motion mentioned, is it? (After examining catalogue.) Yes. It has nothing to do whatsoever with this attachment. It is entirely separate from it and it is entirely a different motion which can be employed with many other things the machines do.

Q. And the particular attachment an excerpt of the description of which Mr. Darby read to you, is not the attachment as manufactured and sold under the patent in suit?

A. Not at all, no.

Q. Mr. Darby called your attention to a statement in the specifications to the effect that abutments would be used on the carrier rods and a reference to Figs. 11 and 12 which you agreed was an error?

A. I beg your pardon?

[fol. 159] Q. (Question read.)

A. I did not agree it was an error, I think. I think I said that was true, that no abutments were used.

Q. No abutments shown in those particular figures.

A. Yes.

Q. That is what I meant. Now what I want to ask you is whether the absence from the patent of any showing of abutments on the carrier rods has any significance whatsoever in the understanding of the patent by anyone familiar with full-fashioned knitting machinery.

A. No, is has not. Those abutments that are spoken of are little bits of steel which are fastened to the carrier rods and which are coming against the respective stops that are to stop the carrier rods.

They are illustrated in the model, Plaintiff's Exhibit 11 for identification. They are these little steel pieces there (indicating on model) and when the carrier rod moves they come against the stop.

Q. What I want to know is whether such abutments on carrier rods—abutments to strike against stops—are or are not an ordinary part of the equipment of full-fashioned knitting machinery?

A. Oh, yes, certainly. That has been so always. In fact, the machine would not run without the abutments.

Q. I want to refer to your testimony of yesterday in which you said that if you would construct a machine just as shown in the drawing, you could not make anything at all. "You could not even knit." I wish you would amplify that a little more, Mr. Meyer; and explain just what you mean.

A. When I said that, I meant to indicate that if the ma- [fol. 160] chine would be built exactly as shown by the patent drawing you could actually not knit because all essential parts that belong to the machine are not shown in the drawing. Amongst them—well, I may say the chain motion which shifts the camshaft and which is really necessary to work this is not shown because it is old in the art, everybody knows it; and therefore, as it is customary in patent drawings, it is not shown. Only the parts that are absolutely essential are shown—and new.

Then another instance is with the narrowing cams which are not shown. Mr. Darby asked me yesterday when the camshaft shifts doesn't that roller fall down, and that roller fall down, and doesn't this come in the wrong position, and so on, and I always said "yes," because as shown in the patent drawing that is true, but what is not in the patent drawing is an essential part of the machine, the narrowing cams, without which the machine could not work at all and every man trained in the art knows that and for that very

reason the narrowing cams have been omitted from the drawings, as I said before, as is customary in such patent drawings. With the addition of the narrowing cams of course the picture is quite different.

Q. Then you have said that no attention has been paid in the patent to the shifting of the narrowing cam; that is, the means for shifting the cam, and so forth, but, as I understand you, that is all a part of the full-fashioned knitting machine.

A. That is an absolutely essential part.

Q. May I ask you whether in this model identified as Plaintiff's Exhibit 11 for identification you have placed on [fol. 161] the camshaft the narrowing cams as they would be required in the full-fashioned knitting machine if the patentee had gone so far as to illustrate that part of the knitting machine?

A. Why, the model is, as a matter of fact, provided with the narrowing cams in order to enable me to demonstrate it. I could not have demonstrated it if I had not the narrowing cams in. In putting the narrowing cams on the model I utilized such cams in the ordinary, usual manner.

Mr. Howson: I will offer in evidence this model which has been referred to and ask that it be marked Plaintiff's Exhibit 11.

(Plaintiff's Exhibit 11 for identification marked in evidence.)

Mr. Howson: I also offer in evidence the drawing which has been marked Plaintiff's Exhibit 15 for identification and ask that it be received as Exhibit 15.

(Plaintiff's Exhibit 15 for identification marked in evidence.)

Q. Mr. Meyer, I wish to refer you to typewritten page 131 of yesterday's record. In the 8th line from the bottom there is a paragraph beginning "When the camshaft shifts, the small extending end on the left hand side of the vertical lever," and so forth. Will you please look at that and state whether that is correctly reported or whether there should be a correction in it?

A. Oh, yes. It should be when "the shifting shaft shifts." I was referring to the shaft 42.

Q. And what about the word "vertical" there on the second line?

A. That should be "horizontal."

[fol. 162] Q. And in the 4th line of the same paragraph the expression is "the other end goes forward and with it." That word "forward" should be "upwards."

Q. Will you turn to page 148 of your examination of yesterday. Mr. Darby asked you this question:

"Q. If you are going to make designs anywhere between the selvage edges of a stocking, you would have to have alternate long and short nose sinkers throughout the entire bed, is that right?

A. Yes, that is true."

A. No, that is not true.

Q. Will you state what, if anything, you have to say in reference to that?

A. I must have misunderstood and thought he said the entire width of the design. Of course we do not alternate short nose sinkers all over the bed. If we wanted to make a design somewhere between the selvages, if that happens to be an inch wide, you only need those for that portion of it.

Q. Now, will you refer to page 151 of the typewritten record of your cross examination and to Fig. 1 of the patent in suit which Mr. Darby directed your attention to. The first full question at the top of page 151 refers to a shaft 32, and I would like you to look at the drawing and state whether 32 does represent a shaft, or if you wish to make a correction in that regard. In that same connection I also refer you to page 5.

A. No. Fig. 1 shows that very clearly, and Fig. 5 shows [fol. 163] it in detail, I believe. (After examining figure): Yes. Fig. 5 shows very clearly that it is what is commonly known as the roller stud; that is the stud on which the rollers 30 and 31 shift. That is not a shaft. A shaft must give the impression that it would be running through from one lever to the other. Each one of these levers has its independent roller stud 32.

Q. Page 153, Mr. Meyer, the 8th line from the bottom, the reporter has a reference to something which occurred almost immediately after the "patent" was offered on the market. That word should, I presume, be "attachment"?

A. Oh, yes, certainly.

Q. When this attachment of the patent in suit in the form you have described was brought out will you state whether or not it was the practice of your company to furnish just parts for the purpose of converting your attachment into the attachment of the patent in suit?

A. No, it was not.

Mr. Howson: That is all.

Recross-examination.

By Mr. Darby:

Q. Mr. Meyer, I think it has been testified several times that some of these attachments you sold had a variable rocker motion with them. There is no question about that, is there?

A. Yes. There is question about that.

Q. You sold variable rocker motions with them?

A. May I ask what you understand by "variable rocker motion"?

Q. I will give you a technical definition of it, if I may. I mean a rocking motion which rocks the needles so as to provide a looseness in the thread where the suture is being [fol. 164] made or in that course, is that correct?

A. Yes. Rocking motions like that were sold right along and it may have happened that occasionally an attachment was sold at the same time, But they were certainly not sold as a part of the attachment.

Q. Referring to this catalogue identified as Defendant's Exhibit D for identification, where it refers to a pointed heel reinforcement or a reinforcement in which the edges make an angle to the wales of the fabric that is accomplished by the attachment which you sold assertedly under the patent in suit, is it not?

A. Yes.

Q. Then he says it is essential in instances of that kind "that means be provided on the machine to furnish a variable rocking motion to the regulating shaft as the reinforcement is widened or narrowed"?

A. Yes.

Q. Now, that rocking motion does have to do with the attachment that you assertedly sell under the patent in suit, does it not?

A. That variable attachment has nothing to do with the attachment itself, no.

Q. No, but it has to do with the operation of the attachment, does it not?

A. To a certain extent, yes.

Q. And therefore when the statement is made that it is essential in the manufacture of full-fashioned hose with a pointed heel reinforcement, or reinforcement in which the edges make an angle with the wales of the fabric, you are referring to that rocking motion being essential to the operation of the attachment of the patent in suit?

A. Not necessarily that rocker motion—any rocker motion.

[fol. 165] Q. But it does include that. This statement——

A. That statement does include it, yes.

Q. There seemed to be a little doubt in your mind according to your redirect examination as to a subject we covered in cross examination as to the operability of the structure as shown in the patent which makes it necessary to review that very briefly. The structure as shown in the patent will not work, will it?

A. I admitted that before, yes.

Q. It will not knit anything. It will not operate itself irrespective of whether additional material or machinery is or is not shown?

A. Not unless that additional material is furnished.

Q. But irrespective of any other part of the knitting machine, this structure as shown in the patent itself will not work, will it?

A. Not unless those additional parts of the machine are furnished.

Q. Just forget any additional part of the machinery entirely.

A. But they are inseparable, Mr. Darby.

Q. Just forget any additional part of the machinery, Mr. Meyer. This device will not work—the device shown in the patent in suit will not work because of the fact that when the shaft 5 is shifted to the right the rollers will all fall off as shown?

A. This device as shown in the patent drawing will not work, no.

Q. Irrespective of whether there are any other parts of the knitting machine there or not that is true?

A. No. That is not irrespective of that. If they would be there it would work.

Q. If you had your narrowing mechanism there that

[fol. 166] would not make this part, this attachment, work, would it?

A. No, but other mechanisms; not the narrowing mechanism.

Q. Now, another thing: I think you stated in your direct examination that the patent describes the shifting of the shaft to the right to prevent the spindle 11 from turning. That is the desired result.

A. I did, yes.

Q. But as shown in the patent itself, shifting the shaft to the right would make the spindle revolve, would it not?

A. As shown in the patent, with the same understanding as before, because the addition of the cams would also change that condition.

Q. The addition of the spindles for narrowing would not do it, would it?

A. The addition of the spindles for narrowing would not do it, no.

Q. So that as shown in the patent, what actually happens is diametrically opposite to what the patent states is necessary to be done, namely, the patent states that you must prevent the rotation of spindle 11 when the narrowing is taking place, whereas actually as shown, the only time you effect operation of the spindle 11 is when narrowing is taking place, that is true, is it not?

A. As shown there, without the narrowing cams, yes.

Mr. Darby: That is all.

[fol. 167] FERDINAND THUN, called as a witness on behalf of the plaintiff, being duly sworn, testified as follows:

Direct examination.

By Mr. Howson:

The Witness: I am sixty-nine years, live in Wyomissing, which is a suburb of Reading, Pennsylvania, and I am secretary and treasurer of the Textile Machine Company, the plaintiff in this suit.

As to what length of experience I have had, in general, in connection with the manufacture of full-fashioned knitting machines I will say that we have been manufacturing full-fashioned knitting machines since 1900,—approximately thirty-five years.

I have a general familiarity with the Schletter attachment sold by my company, referred to as reinforcing selvage or shadow clock attachment with reverse motion.

It has already appeared that we actually purchased that patent from Schletter in 1929. It also appears that the attachments were placed on the market by the Textile Machine Works, prior to the actual date of assignment, back in 1927. I will explain that briefly.

When Mr. Schletter first conceived the idea of this improvement, he came to us and discussed the matter with us and we offered the facilities of our engineering department to him to develop it and to apply for a patent on the attachment.

The first application was prepared in our engineering department and during this entire period from 1921 to 1927 or [fol. 168] 1929, we were in constant touch with him, and in fact, our business relations with him were quite close, because we furnished him with machines for a new factory which he started, to exploit the invention involved in his attachment, and we furnished him with machines on a deferred payment plan.

The understanding between us and Schletter was that we were to have the exploitation of the patent so far as the mechanical part was concerned and the sole rights under it, but he was to have the right to patent designs for his own purposes.

Finally, in pursuance of that understanding, we actually took title to it in 1929. We paid $20,000 cash for it. As to whether our company own other patents I will say that we have, I think, 75 patents granted and about 25 or 30 more pending on knitting machines and parts thereof.

At the time we took over the patent and paid the consideration, we had a very thorough investigation made as to the validity of the patent.

I will state briefly what there is about the attachment that made us interested in it as an attachment for a full-fashioned knitting machine.

The attachment had possibilities which made the full-fashioned knitting machine practically a universal machine for style purposes as well as for quality purposes of merchandise, and the entire industry soon realized that it was indispensable, and the older machines that were in operation without an attachment of this kind were practically all,

with few exceptions, supplied with this attachment and had the attachment built into them.

I can tell how these attachments were priced. I have a [fol. 169] notation here. The prices in 1928 were $350 net and with the shadow clock, $400 net. Then in October, 1931, we made the attachment with shadow clock standard equipment and reduced the price to $350 net.

We have granted licenses under the patent. We licensed the Grosser Knitting Machine Company, who were the representatives of the German firm of Hintschel and furnished them with licenses for a total of 186 machines which they had sold to various mills, and for these licenses they paid us $75 per machine. We granted them a continuing license to sell at the same royalty. This is a photostatic copy and a true copy of the Grosser license.

Mr. Howson: We offer this in evidence. I assume you do not mind the fact that it is a photostatic copy?

Mr. Darby: I do not mind the photostat, but I would like the production of the original, to examine it. You may offer this now, but we request of record, the production of the original.

Mr. Howson: I offer that as Plaintiff's Exhibit 37.

The Witness: We have just concluded negotiations with several users of the defendant's machines in Reading and Easton, and one firm, the Chipman Mills, have paid a license fee through their patent attorney in Philadelphia, and the other, the Rosedale Knitting Mills were going to settle, I think on Monday and sign the license agreements and through their patent attorneys deliver them to Mr. Howson. [fol. 170] They have agreed to do that. We have, furthermore, negotiations pending with Robert Reinert, Inc., who is also an importer of German knitting machines, who is accepting the license terms made to his firm pending the return of Mr. Reinert from Germany, and I believe he is coming back in a few days. He made an application for a license.

Q. Are there any other competitors in the field, that is, for full-fashioned machines in this country apart from the Textile Machine Works, your company, and Grosser who has taken a license, Reinert, who has applied for it, and the Hofmann Company, the defendant in the New Jersey case, and the Hirsch Company in this case; do they represent your competitors?

A. Well, there is one, the Wildman Manufacturing Company, which has practically discontinued building full-fashioned knitting machines.

Q. And these other four that I have mentioned,—they are all importers of German-made machines?

A. Yes.

The average price today of one of these full-fashioned machines that we are speaking about, is around $8,000 for a 24-section machine. The machines have become more complicated and more complete, and consequently more expensive during the last ten years particularly, because of the added length. They started with 16 sections, but they are now practically a standard of 24 sections.

Mr. Howson: All right, that is all.

Cross-examination.

By Mr. Darby:

Q. Mr. Thun, when you bought the patent in suit, you bought another patent as well, didn't you, for this $20,000? [fol. 171] A. Well, we made it a condition that another pending application be included, but that was of rather an insignificant value to us. It practically resulted from the same original application.

Q. The other application which was included in your purchase was the one which was issued as the Schletter patent 1,752,206, copy of which I show you?

Mr. Howson: Yes, that is right, Mr. Darby.

A. Correct.

Mr. Darby: I ask that a copy of that patent be marked for identification.

(Marked Defendant's Exhibit F for identification.)

Q. You testified in the Hofmann suit, did you not, Mr. Thun?

A. Yes, sir.

Q. In that suit you made this statement: "I personally conducted negotiations which led ultimately to the purchase of the patent referred to and the patent in suit early in 1929. We paid $20,000. The transfer for that amount included a divisional application, the one I just showed you and a patent resulted from the divisional application.

That divisional patent was not an important part of the transaction. It was just thrown in." That is a correct statement?

A. Yes, that is right.

I conducted negotiations with Mr. Schletter when he first came to us. That was approximately 1921, I think.

[fol. 172] Q. And when did you first turn out a commercial machine embodying this attachment? I think one of your representatives stated that it was August, 1927; does that correspond with your recollection?

A. I have a notation here that in 1927 and 1928 we furnished a total of 594 attachments during that year.

Q. So that your first attachment under the invention that Mr. Schletter revealed to you in 1921 was manufactured and sold by us in 1927 and 1928, before the patent really was issued.

Q. Yes. Was there a demand between 1921 and 1927 for an attachment of this kind in the hosiery trade?

A. Well, the possibilities that this attachment furnished for meeting style trends, such as fancy heels and other things, naturally created a demand for the attachment.

Q. My question is whether a demand existed in 1921 for an attachment of this kind?

A. In 1921, there would have been a demand for an attachment of this kind if somebody had experimented with it and brought out new samples that appealed as novel and attractive.

Q. I don't believe you have answered my question yet. What I am trying to find out, Mr. Thun, is whether or not the styles or trends in the hosiery industry required an attachment of this kind between the period of 1921 and 1927?

A. Mr. Darby, the only thing I can say is that the style trends as they existed during that period were interdependent in a sense. The short dresses that ladies wore emphasized the style qualities of hosiery and the shoes more or less were made of a style to conform to the dresses and to the ensemble, and the stockings were part of it. Therefore the one helped the other.

[fol. 173] Q. Am I to understand from your testimony that there was no demand for an attachment of this kind during this period?

A. I would not say that. There always is a demand for something good and something new.

Q. Were pointed heels being manufactured during that period?

A. I don't know exactly when that started. The history of the pointed heel is perhaps instructive. Landenberger's patent was taken out, I think, in 1910 or 1912, and Landenberger went from Reading to Julius Kayser & Company, and perfected his stockings with a pointed heel.

Q. About that time in 1910 or 1912?

A. I am not quite sure as to the year, but it was before the war. He showed these stockings to Julius Kayser & Company, but they could not at that time see anything in them, and were content to have shop rights under this Landenberger patent. Landenberger sold it to Emery Beers.

Q. I think you have answered me enough. I am interrupting you with the consent of your counsel.

Mr. Howson: I just wanted to explain that we were getting a little remote from the question.

Q. Maybe I can get at it this way: You say there is always a demand for something novel.

A. New and something good.

Q. So that if this attachment had been brought out in 1921, would it have received, in your judgment, as great a demand by the hosiery manufacturers as it did in 1927 when you brought it out?

A. Well, in 1921 the industry——

[fol. 174] Q. Can't you answer that question, please, Mr. Thun?

A. Not without qualifying it. The industry in 1921 was relatively small, confined to a few people, and the pressure to bring out something new was not as great then as when the industry grew, when there were 350 concerns like there are now.

Q. How many were there in 1927?

A. I should say less than a hundred.

Q. Less than a hundred. Now, my question is in your opinion, if this attachment had been brought out in 1921, would it have been received just as freely as it was in 1927?

A. Not quite, because the style trend had then not been developed to the same extent.

I testified that we furnished machines to Mr. Schletter for the plant of Schletter & Zander. I also said it was for

the purpose of enabling Mr. Schletter to manufacture styles with attachments of this nature of the patent in suit.

Q. Did Mr. Schletter ever manufacture any attachments and use them commercially prior to the time he sold the patent to you?

A. He bought them from us.

Q. He bought them from you, but he did not manufacture any attachments himself prior to 1927 and put them in commercial use, did he?

A. No. He might have done a little experimental work on one or two attachments, but not many. So far as I know, the first attachment purporting to be under the patent in suit that was used commercially were attachments made and sold by us, beginning in 1927.

Q. You have referred to the Grosser license which has been put in evidence. Did you personally negotiate that license?

[fol. 175] A. Well, I had some talks with Mr. Nydecker and Mr. Winkler, and I think there were various visits, but I notice this one was signed by Mr. Jansen.

I was familiar with the Grosser license. I know that the Grosser license does not purport to be a complete license under the patent. The license is limited to certain parts of the patent. Likewise the license is limited to production of certain type of suture.

Q. A certain type of suture to which the licensee was limited under specified claims of the patent is illustrated by exhibits attached to the license agreement, is it not?

A. To the technical part of it——

Q. I just asked for the fact; that is the fact, isn't it?

A. The reason for this was——

Q. I have not asked for the reason, Mr. Thun, I am just asking for the fact.

A. The reason will explain the fact. We had agreed with Schletter that he should exploit the construction of the patent and this came under that heading and we wanted to reserve that for him and not give out a general license.

Q. Now, will you answer my previous question?

Mr. Darby: Will you read the question?

Q. (Read.)

A. Evidently Mr. Nydecker was perfectly satisfied with this license.

By the Court:

Q. There is just one specific question, Mr. Witness. Can't you answer that?

The Court: Read the question again.

[fol. 176] Q. (Reread.)

A. Yes.

Q. Likewise the license agreement illustrates by a sample attached thereto a type of suture with the licensee did not acquire the right to make, is that correct?

A. I think so, yes.

Q. Are you familiar with the type of suture of those fabrics?

A. No.

Q. You are not?

A. I don't go into the details of that.

I have also referred to some recently-granted licenses to users of machines of attachments supplied by the defendant. We have not granted licenses to hosiery mills who used attachments supplied by the Hofmann Company. The users to whom we granted this license, we first threatened with patent infringement suits, because they were using attachments supplied by the defendant in this case and because they were in the district in which we had obtained the sustaining verdict.

Q. You threatened them with suit if they did not settle with you, didn't you? A. We did not threaten them very severely.

Q. But you did threaten them?

A. We are on very good terms with them.

Q. But you did tell them that you would see them if they did not settle with you, whether you did it severely or not?

A. I don't know whether that is in the letter or not. That was handled between Mr. Howson and the other parties. They were notified by our company or in behalf of our company before a settlement was effected.

Q. You referred to the defendant company as being an importer of German-made knitting machines. You know, do you not, that the attachments sold by the defendant for [fol. 177] its knitting machines are made in the United States?

A. I did not know that, but I knew that Mr. Hirsch had a connection with the Lieberknecht concern in Reading, and

that they were making certain parts of the knitting machines there, possibly also these attachments.

I have given the price at which we sold our attachments. I don't know whether that price includes the variable rocker attachment. I testified that the original patent application of Mr. Schletter was prepared by Mr. Stewart, in Reading, who was then our patent attorney. I presume that we paid the costs for the preparation of the patent application, but I am not sure.

Our negotiations with Mr. Schletter were not at any time abandoned between 1921 or 1927. We worked with him all the time.

I know that the patent application that was filed by Mr. Stewart was rejected by the Patent Office.

Q. And that the application was abandoned; do you know that?

A. It was revived, was it not, by Mr. Schletter?

Q. Do you know that it was abandoned?

A. I know that he was dissatisfied with Mr. Stewart.

Q. Can you answer my question: Do you know whether it was abandoned?

A. Well, that is a technical question.

Mr. Howson: I object, if the Court please. That is not the purpose that this witness was called for. It is a matter of record, and if you intend to prove that, I submit this is not the proper time.

The Court: The objection is sustained; not proper cross examination.

[fol. 178] Mr. Darby: If your Honor please, may I say this, to get an answer to this question—I don't want to make myself obnoxious in resisting your Honor's ruling, but this witness stated that he paid $20,000 for the application pending between 1921 and 1927. He said that his application for patent was filed, and we will attempt to prove, and I think will be able to prove, that this whole subject matter was resuscitated about 1927 after it had been lying dormant all that time. The application was abandoned, and I think it is pertinent, in view of the very purpose for which this witness' testimony has been submitted, to establish this fact, and I believe it to be the fact that the plaintiff knew that the patent had been rejected by the Patent Office and knew that it was abandoned.

The Court: What he got was a patent, and that was not abandoned, and that is what he paid his $20,000 for.

Mr. Darby: That is true, but your Honor——

The Court: Objection sustained.

Mr. Darby: What they are trying to do is to carry it back to 1921. May I note an exception.

The Court: Certainly. There is no evidence from this witness to that effect. There isn't any evidence in this testimony that would support that statement.

Mr. Darby: Very well, your Honor. I certainly understood this witness to say that Schletter brought him this in 1921.

The Court: His testimony, of course, speaks for itself, [fol. 179] but certainly as I understood his testimony, there was nothing to show that it was brought to him in 1921 and then abandoned.

Q. Do you know what make of attachments are in use by Rosedale and Chipman with whom you are negotiating and have arrived at a license arrangement?

A. I have not seen their machines nor their attachments, but from the fact that they are willing to acknowledge the validity of the patent and take out a license——

Q. No, I simply asked you what make of attachments they are using.

The Court: He said he doesn't know.

The Witness: Lieberknecht, it must be.

The Court: That is a conclusion. I understood you to say you had not seen the machines.

The Witness: No, I have not seen the machines.

The Court: Then, that answers the question.

Mr. Darby: That is all.

George W. Goetsch, called as a witness on behalf of the plaintiff, being duly sworn, testified as follows:

Direct examination.

By Mr. Howson:

The Witness: My age is fifty-two years old; residence, 8200 Manor Road, Elkins Park, Pennsylvania. I am superintendent of the Quaker Hosiery Company. The Quaker

[fol. 180] Hosiery Company is located at 22nd and Lehigh, Philadelphia. That company manufactures ladies' full-fashioned hosiery. I have been connected with the company sixteen years. The company operates 210 machines. It manufactures about two thousand dozen pairs of stockings a day. I was connected with the full-fashioned machine industry prior to my first connection with the Quaker Hosiery Company. My connection with the industry covers about 39 years. We use full-fashioned knitting machines manufactured by Textile Machine Works and also foreign makes. The names of the foreign makes are Karl Lieberknecht, Theodore Lieberknecht, and Hofmann. The Karl Lieberknecht machines are those sold by Louis Hirsch Machine Company, the defendant in this case.

Evidence has been given in the case that the Textile Machine Works have placed upon the market, beginning sometime in 1927 the so-called reinforced selvage or shadow clock attachment with a reverse motion as illustrated on page 3 of Plaintiff's Exhibit 32; I am familiar with that attachment but I don't see the reverse motion on this drawing. In our plant, we have utilized these attachments.

We have used the reverse motion since November, 1927. As to what extent we have purchased and installed such attachments I will say that from Textile Machine Works we bought all but about 19 machines.

We have found the attachments successful and satisfactory. We have used them for pointex heels, or rather one was pointex heels, French heels, fancy design heels; on the footer we used them for cradle-foot cotton sole with silk instep.

[fol. 181] I am asked to state what I think with reference to the value of the attachment as an addition to the full-fashioned knitting machine. I will say that I think today it is indispensable. You must have it with the style that is in vogue today. I believe it is a fact that styles have been created by the use of the attachment. I have used the attachment for doing split seam work at an angle to the wales? *A.* By split seam, I mean closed split. The stocking which is handed me is a stocking such as produced by me by the use of the attachment. That is cotton and silk overlapping with closed splits. This stocking happens to be two needles overlap.

I have also utilized that attachment for making four needle overlap. We make them both ways. That is four needle, yes. You see your difference in the width there.

Mr. Howson: The stocking identified by the witness as a four needle overlap split is offered in evidence as Plaintiff's Exhibit 38.

(Marked Plaintiff's Exhibit 38.)

The Witness: That four needle overlap, closed split formed by the attachment, is satisfactory. We are still making use of it today. The stockings are being sold today.

I am familiar with an attachment which has been in use for many years in connection with full fashioned knitting machines known as a split sole or split foot attachment. Such an attachment is referred to on page 54 of Plaintiff's Exhibit 6 which is shown to me. That was in vogue when we just made the straight split; either crowfoot or closed split. [fol. 182] That attachment was provided with raising and lowering under-cut stops. A push and drop cam; up and down. First to my knowledge years back, I would say probably thirty years ago, it was used mostly then when we made black cotton stockings with wide soles and that was all made in crowfoot split because it was more ornamental. Later when the silk hosiery came into vogue gradually we threw it over into a closed split which was made with the same attachment just by simply not leaving it rock up and down.

The attachment was provided with means for either permitting it to rock up and down or preventing it from rocking up and down. Two levers on that would give you both ways. The first device that was similar to that was on a German machine; that was a Schubert & Selzer machine. I would say I have been familiar with it about thirty years. About the time we were using the attachment for making the open split work it was made in quite large quantities.

I am not connected in any way with either of the parties to this case. They are both friends of mine. I have no interest in the controversy.

Mr. Howson: That is all.

Cross-examination.

By Mr. Darby:

Q. Mr. Goetsch, I understood you to say that in your opinion this attachment created styles. What styles did you have in mind when you made that statement?

A. It actually created a sandal foot I would say, more so—it had also created fancy heels but they were very short lived on the market. The sandal foot, is a form of cradle foot.

We had not made cradle feet before we acquired the attach-[fol. 183] ment from the Textile Company. I do not know whether the cradle feet had been on the market before 1927.

We made pointed heels, starting about June, 1927. That was before we had the reverse motion attachment. As to whether that was a drum or a spindle device that we made pointed heels with I will say that we bought the first one from the Textile Machine Works without the reverse motion to make pointed heels with. We did not have any drum type in our plant at that time. We have acquired some drum types since 1927. We put the drum type on the Schubert & Selzer machines that we had because that was their machine and I favored to let every machine manufacturer put his own type of attachment on.

A drum type can make the same designs, cradle foot, sandal foot and reversed heels as the reverse spindle can, depending, of course, upon the pins of the drum. But it is not quite as practical to my mind and therefore I prefer the spindle type. It is possible that it can make everything the spindle type can make, but it is more awkward.

Q. You do not use the reverse motion on your leggers of your commercial stockings, do you?

A. It is not necessary to use it in the fabric of the stockings but is an advantage by allowing it to still operate; put enough buttons on there so it is necessary to start the next set, and the knitter does not have to rack it back by hand. The attachment is supplied with the hand rack to rack it back if he wants to. If you do not rack it back by hand, that is, if you rack it back automatically by machine, you have to keep the machine in operation a sufficient length of time [fol. 184] until it is all the way back before you start making another stocking. That would happen doing the next following set after the one you take off. I would not say

that that is a waste of power. You are manufacturing while it is operating. You are making another set of stockings. You are starting the welt on another run.

The attachments that we got from Textile beginning in 1927, the so-called Schletter attachments, did not have undercut stops to make the two needle curve. That did not come out until later.

Q. And they were not tilted with each course. They were stationary stops. That is, they did not rock with each course?

A. No. Not the first ones.

Q. I am afraid I made the answer unintelligible by my poorly formed question. They were stationary stops, so far as tilting is concerned?

A. Yes.

We have not made shadow clocks with this attachment—commercially. We have never made split clocks. I have never heard of them commercially.

I referred to what I call a crowfoot. That is the open two needle stitch. I believe that is what some gentlemen called it here. But naturally it is closed. It is sort of a herringbone effect.

As to why we dropped the herringbone, two needle, when we came to manufacture silk stockings I will say that with the herringbone we would have more seconds. The reason was as follows:

As the carrier has to shog over in a specified time. If a friction box was a little loose and did not get over in time, [fol. 185] that would drop there and you would have a hole there instead of being closed and therefore as machines gradually speeded up that idea was naturally dropped and we made the closed split due to the fact that we ran the machines fast.

Q. In point of time of production which type of stocking did you first put out? The two needle lap foot which you referred to in your direct examination or the four needle lap foot which is in evidence as Plaintiff's Exhibit 38?

A. The four needle lap was the first put out.

Q. When did you adopt the two needle lap in the foot?

A. After Textile Machine Works brought out an improvement to make a two needle lap. Naturally we thought probably the demand may be created on the market and we bought some. Then we found out as our orders increased

that we did not have enough of those machines—this attachment.

Q. To make the two needle lap?

A. No. And we started to make the four and we mixed them all up and we found out no buyer ever objected or ever bothered, so we stopped buying the two needle lap and make them both ways today.

Q. I want to know when the Textile made available to you attachments capable of making the two needle lap?

A. I am sorry. I do not just have the figures. It probably must have been about a year or so after we had the others in there.

Q. About 1930 or 1931?

A. I believe in around there somewhere, yes.

Q. But the attachments you first acquired from Textile could not make the two needle lap, is that right?

A. It could make them, but it would not make them right [fol. 186] because you would have a hole in the corner. That is, if it made the two needle lap you would have a little pin hole here in the corner (indicating on exhibit). Therefore even now with your two needle why this first carrier is actually going in four needles.

Q. In other words, it could make a two needle lap of the herringbone type that we referred to?

A. Only straight. Not curved. It could not make a curved two needle lap. The later attachment that we acquired from Textile, around 1930 or '31 or thereabouts, could make a curved two needle lap, closed.

Mr. Darby: I ask to have the two needle lap structure referred to by the witness marked for identification.

(Marked Defendant's Exhibit G for Identification.)

Q. I am now reading from an advertisement which has been identified as an advertisement of the Textile Machine Works. It is marked Defendant's Exhibit C for identification and contains this statement——

Mr. Howson: I object to any reference to that or any statement in it, Mr. Darby, because it is absolutely foreign to anything that I asked Mr. Goetsch, it seems to me.

Mr. Darby: Might I put the question and then you put the objection.

Q. The statement was made, "Full-fashioned knitting machine equipped with the Reading 3-carrier alternating attachment and intended for making a cotton sole and cotton cradle foot can now be provided with the Reading [fol. 187] 2-needle closed split attachment. This device (Patent applied for) eliminates the 4-need' overlap which causes a bulky line where sole and instep are joined. Write for particulars."

My question is, have you in your commercial practice found a four-needle overlap to cause in sheer silk hosiery a bulky line where sole and instep are joined which is objectionable?

A. May I answer you this way: I have not found it, because in real sheer silk hosiery you naturally would not put a cotton sole in.

Q. Have you manufactured stockings with cotton soles?

A. Yes.

Q. In the manufacture of stockings with cotton soles have you found a four-needle overlap where sole and instep are joined to cause a bulky line which is objectionable?

A. We have not, no, sir.

Mr. Darby: That is all.

(Witness excused.)

STIPULATION AS TO TESTIMONY OF PAUL KROENER

Mr. Shaw: Mr. Darby and I have a stipulation with regard to the witness we examined yesterday. It is stipulated by and between counsel that if Paul Kroener were recalled as a witness on behalf of the plaintiff he would testify that of the 142 sales of the attachment during the month of May, 1929, 94 of these were made prior to May 21st.

I offer in evidence the Schletter Patent 1,531,349, referred to by Mr. Meyer during his examination, as Plaintiff's Exhibit 39.

(Marked Plaintiff's Exhibit 39.)

Mr. Howson: Plaintiff rests.

[fol. 188] Defendant's Proofs

MAX C. MILLER, called as a witness on behalf of the defendant, being first duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

The Witness: I reside at Cumberland, Rhode Island. I am an inventor and expert in knitting. I have been associated with the knitting industry over 25 years. I am a civil and mechanical engineer. My education was in Russia. I attended school in Germany. I have had connection with the knitting industry in the United States since 1910. I have been connected with Scott & Williams. I was employed by Scott & Williams then at Philadelphia, in 1910-1911 as designer of circular knitting machines and in the same capacity with the Acme Knitting Machine Company of Franklin, New Hampshire, during 1911.

From 1912 to 1920 I was employed in the same capacity by the Jenks Knitting Machine Company of Pawtucket, Rhode Island, designing and inventing for them a number of knitting machines, both straight and circular and there had been granted to me some twenty patents covering this work. I have since worked independently of others as an expert on knitting machines of all types. My place of business between 1920 and 1923 was at Pawtucket, Rhode Island.

In 1924 I built my present experimental laboratory in Cumberland, Rhode Island, where I have designed and built various types of knitting appliances and knitting machinery. [fol. 189] During the years between 1910 and 1935 I had a number of times been retained as knitting expert by some of the leading attorneys as well as by a number of the leading hosiery manufacturers, and have been employed and have built or invented various types of knitting machines and appliances for a great number of corporations.

For some time I have built full-fashioned knitting machinery for the Hosiery Machine Corporation, and circular machines for the Miller Circular Machine Patents Corporation. I have had over sixty patents issued to me here and abroad, including circular and straight machines, with many applications at the present time pending.

For the last twelve years I have been writing articles for trade papers on the knitting art, fabrics and machinery, most particularly for the Textile World Journal. My book "Principles of Knitting" was published in 1931, by the McGraw-Hill Book Company of New York and my second book on "Knitting," the major portion of which has appeared in the form of articles in the Textile World is now being prepared for publication by the same company. This book will completely describe the design and operation of the Cotton-type full-fashioned hosiery machine. I also wrote the Knitting Machine section of the Commonwealth Industrial Encyclopoedia, published by P. F. Collier & Son Company.

There are, broadly speaking, two distinct types of straight or flat knitting machines. The term "straight" and "flat" is used synonymously. It means either a machine having a [fol. 190] single set of needles or a machine having two sets of needles—that is, two beds of needles. The modern type of single bed machine sometimes called flat and sometimes straight is a development of the Cotton principle and invented in 1864; the other type I mentioned, the two bed type, was invented by a man named Lamb, an Englishman, Reverend Lamb, and he used the two beds of needles so that he could either produce straight flat pieces of fabric somewhat similar to Cotton or he could make a tubular fabric. Both types of machines fashioned and both types can fashion, by lifting loops off of certain of the needles and depositing them on other needles, and for this purpose they are equipped with narrowing points or some form of narrowing implement for lifting loops off of certain of the needles and depositing them on other needles. Both machines can do that. The characteristic of the Cotton type of machine is the fact that it is now built in many sections. The machines are very long, all of the operating parts being driven and operated by a single camshaft running throughout the length of the machine. Continuing the comparison between the two major types of machine, the Lamb machine is also built with a similar cam shaft. The Cotton machine is fitted with carriers that lay the yarn to the end of the implements and those bars extend throughout the machine, there being quite a number of them. Similar bars are used in multiple section on the Lamb machine. In the Cotton machine there are stops that limit the traverse of these carrier bars so that you can get long and short strokes and a very

[fol. 191] similar system is used in multiple section on the Lamb machines.

When I say long and short strokes, I mean strokes that go from selvage to selvage as well as strokes that go less than from selvage to selvage. There are really three types of carrier strokes. One I would call the selvage to selvage carrier. That is the carrier that traverses the yarn across the needle bed, depending entirely upon this stroke as to how wide the fabric would be,—that would depend on how wide you want to make them. That is the selvage to selvage carrier. Then you have short stroke selvage carriers. By that term I mean carriers that move inwardly from the selvage any desired distance. They may move from one selvage; they may move from both selvages, and their length can be varied. Then there is a third type which is a short stroke inset carrier. That carrier can traverse the yarn for a short stroke in the middle of the bed, not from the selvage. Of course it follows that you can use these carriers in combination. For instance, you can use the short stroke selvage carriers in combination with inset carriers and between the three carriers produce a piece of fabric as desired or you can use a long stroke carrier and short stroke selvage carrier to produce spliced work in which case the center portion is relatively thin as compared to the selvage portion.

To make it clear, I have a drawing which will illustrate this. In view 1 it shows a long bar with a multiplicity of carrier tubes fastened to it, there being one carrier for each section of needles. That type of bar can be traversed for [fol. 192] either the total width of the needle from selvage to selvage or for shorter strokes, or from selvage to selvage nevertheless. The next type is shown in view 2. In that view we still have the long stroke selvage carrier, that makes the stroke across the entire set of needles or that number of needles that are active at the time, and in addition there are two carriers that make a short stroke as shown by the dark line which is intended to represent the fabric. In this view 2 the bars are lettered A, B, C; A is the long stroke selvage carrier; B is the left hand side short stroke carrier, while C is the right hand side short stroke selvage carrier. The question as to whether the carriers are to be used as a selvage carrier or whether they are to be used as a short stroke carrier depends entirely upon the type of the so-called abutments with which it is fitted. These abutments are shown in view 2. As an example, at B^1 and C^1. Carriers

are also shown in this view with abutments at the end—A on the left hand end and A-C on the right hand—the A with the A carrier, of course, gives it as a full stroke, has an abutment in two places at both ends. It has long been the practice in the use of full-fashioned machines to arrange abutments anywhere on the carriers—that is anywhere you want to have them, on the long stroke or short stroke, depending on the mechanism, to stop the mechanism. Those are called carrier stops and they have been used in about every conceivable position along the machines. The most common form of stop is what is known as the end stop. They are shown in view 1 in the same drawing, which clearly shows that the selvage carrier A has been stopped in its traverse [fol. 193] at the left hand end of the machine against the left hand stop, and on its next movement it will abut at the stop provided similarly to the left, but on the right side of the machine.

In view 2 is shown one method of stopping short stroke carriers. That particular form is located about centrally of the length of the machine and the stop is numbered D. The outer stroke of this third selvage stroke carrier abuts on the same end stop that was described in view 1. Those carriers being compressed with the proper abutments, as for instance the left hand short stroke selvage carrier C being provided with an abutment C on this right hand end so that it may on its stroke on the right abut against the right hand end stop. The left hand short stroke selvage carrier B is at the left hand end, so moving from right to left it abuts at the end stop. The short stroke carriers are further fitted with abutments B^1 and C^1 respectively for the B and C short stroke carriers and these abutments strike against a stop designated by the letter D in view 2. So that the right hand short stroke selvage carrier will on the movement from right to left abut against the right hand side of the center carrier stop C. The left hand short stroke carrier, that is, the B carrier, will abut against the same stop on its left hand side when it is the stroke from left to right. It will readily be seen that by positioning the stops B^1 and C^1 on any particular carrier, and arranging the position or location of the abutments properly that any desired short stroke can be produced.

I have so far mentioned the end stops as being used to arrest the traverse of the long stroke carrier on the end of the [fol. 194] machine, being any carrier of the selvage. In

view 3 of the same drawing an arrangement is shown which is in common use and has been for many years on full fashioned machines for arresting the traverse of the selvage to selvage long stroke carrier on a device like that about central of the machine, left. That is shown in view 3. The same result is achieved with these central stops as was achieved with the end stops. The A carrier as shown in view 3 merely being provided with the proper abutments, A^1.

Q. Let me crystallize that, Mr. Miller. As I understand you it was customary to control the travel of the carrier by spindles at opposite ends of the machine as shown in illustration No. 2?

A. Yes. The spindles are reversely-threaded with respect to each other. It was likewise customary to accomplish the same result with a single spindle located at the approximate center of the machine, the respective ends of the single spindle being reversely-threaded.

View 4 shows the centrally located carrier stops and in conjunction with those stops there is provided a stop D, very similar to the one described in view 2, for arresting short stroke carriers in their movement from the selvage inwardly. This stop D being exactly like the one described in view 2, I will not again describe it in detail.

I think I will just finish with 5 and 6. This drawing also shows common forms of end spindles in duplicate. Machines have been built in which spindles like the end spindles shown in view 1, have been put in duplicate for controlling long stroke selvage carriers against one of the sets of stops, [fol. 195] and the short stroke carriers against the other set of stops. Views 5 and 6 show the proper abutments for achieving this end. In order that the stops described may be altered in their position so that carriers can have a longer or shorter stroke, it is customary to have the stops mounted on screws or what I will call spindles, so that by rotating the spindles the stops against which the carrier abutments strike may be positioned where desired or they may be moved step by step. In order to achieve this step by step movement these spindles are usually fitted with ratchets which are diagrammatically shown in these views. The spindles and ratchets shown in Views 1, 2, 3 and 4 are of the single type. By that I mean just one ratchet is provided with teeth so cut at its periphery that its spindles can be operated step by step in one direction.

In View 5 the nuts or stops Z can be moved backward and forward step by step for the reason that their spindles are fitted with two ratchets, the teeth in the periphery of the ratchets being so cut that the spindle can be turned and racked backward and forward.

The arrangement shown in Views 1, 2, 3 and 4. Therefore these spindles with a single ratchet can therefore step the stops only in one direction. When I say "step the stops," I mean move the stops each rotation of the spindle. Move the stops step by step in one direction. This direction may be either in or out but is usually inward as the machines on which these spindles are used usually commence knitting on a greater number of needles and reduce the number of needles in action as the knitting progresses [fol. 196] so that the direction of racking is so that the carriers make shorter strokes automatically as the ratchets are moved.

The arrangement in View 5, however, for the spindles Z due to having two ratchets with opposed teeth can cause the carriers to shorten or lengthen their stroke.

Q. In these old flat straight knitting machines were they confined to the production of hosiery or did they make other articles?

A. Flat machines have been used to make all kinds of garments, as, for instance, underwear, sweaters, scarfs, gloves.

Q. Is the same machine used in each instance?

A. Oh, yes, exactly the same machine used but the machines have usually been used for making garments that require shaping. In other words, if you wanted to knit a straight piece of cloth that probably would not use a full-fashioned machine. You would use some other cheaper type of machine. He would not use a machine with this device to shape. A garment that is fashioned is usually more costly than one that is not, so it allows the manufacturer to use the more expensive machines.

Mr. Darby: May I interrupt long enough to offer this drawing in evidence.

(Marked Defendant's Exhibit H.)

The Witness: In the manufacture of a full fashioned stocking it is customary to start the fabrication at the widest part, at the welt and end with the narrowest portion,

at the heel. That is usually true although stockings are made on full-fashioned machines, particularly abroad—I [fol. 197] don't know of any having been made in this country—that are widened instead of narrowed. That is more usually done for garments other than hosiery. For instance a piece of goods that was going to be used for an undershirt might require both narrowing and widening.

It was customary in these very early machines to provide means to turn the spindle in both directions for that purpose. I want to say here that what I was saying about spindles and stops for carriers can just as well be said for spindles for controlling the narrowing. In other words, whether a spindle is used for the purpose of narrowing, that is bringing in the loops; that is shifting the loops, or whether the spindle is used to arrest the motion of carriers as far as the spindle and the racking means and the nuts and things of that kind are concerned, they are alike. There is not any difference.

Q. Is the movement imparted to the spindle for narrowing or for shortening the traverse of the thread carriers effected manually or automatically by the machine in these earlier or old machines?

A. It has been automatic. That racking has been done automatically, oh, certainly forty or more years; yes, more than forty years.

In fabricating a stocking in accordance with the practice in the United States automatic operation of the spindle is not required in more than one direction. Not for the narrowing part of the work. By "narrowing" I mean—you understand the carriers also narrow just as well as the points. When I say narrowing let it be understood I mean loop-lifting. The absence of shifting the loops. You could shape without lifting the loops. You could say a [fol. 198] carrier was narrowing if it shortened its stroke. So when I say narrowing I mean loop-lifting operation.

In fabricating a garment such as an undershirt, they quite often started at the widest part, as in the stocking, at the shoulders. Quite often they start with the wide part and narrow down and widen out again. The widening operation is effected by turning the spindle automatically, and for that purpose then they use two ratchets. They have to use opposed teethed ratchets so the spindles can be turned selectively either backward or forward. Of course the

carriers that work with those narrowing points have to be stopped in the same way. In other words, in addition to controlling the lifting of loops you have to also control the thread-carriers. In fact you can narrow without loop-lifting. You can shape without the narrowing tackle, but you can not shape without the carrier stop mechanism. Of course there is another thing there I would like to say and that is, in making underwear and other garments, particularly underwear, I have in mind there are many times where short pieces of fabric are knitted in between long pieces of fabric. For instance, you take a knitted portion of certain types of underwear, for the breast portion or hosiery, they are made in a separate portion when the long stroke carrier stops and another carrier makes the short piece that goes across the breast, so that you have in full-fashioned machines making that kind of underwear, you have short stroke carriers that are if you will—that do not go to the selvages. In other words, they are very similar, if it was not for that particular garment, to what we would call inserts. In other words, they are short [fol. 199] stroke carriers that do not go to the selvages. That is common in underwear made on the full-fashioned machines.

Q. What controls the automatic operation on these very early machines? Do they use a chain for that purpose, pattern chains?

A. Oh, yes. Chains are very old.

I am personally familiar with one of these old Lamb type of machines for making full-fashioned fabrics. I have a photograph showing such a machine here that has been in this country since 1914.

Q. To your own knowledge that has been here that long?

A. Well, the man told me who bought it. I believe it was built in 1912.

Mr. Howson: Mr. Darby, is that something set up in your answer?

Mr. Darby: No. This is something purely historical.

Mr. Howson: That is not an anticipation?

Mr. Darby: Oh, no. That is historical.

Mr. Howson: Mr. Darby, just to make myself clear, this not having been pleaded, I understand does not go to the question of the validity of the patent.

Mr. Darby: It merely shows what was commonly used.

It is not pleaded and not used as an anticipation. It is historical.

Mr. Howson: But that does not quite meet the point.

Mr. Darby: I am certainly going to refer to it as showing what was employed in the Lamb type of machine.

[fol. 200] Mr. Howson: Now, if the Court please. I don't know whether there is a question pending, but I might make my position plain. I understand the law to be that as to patents, publications, prior machines, such as this purports to be, which are to be used by the defense in attacking the validity of the patent, that I am entitled to notice in the answer; that if they are not pleaded they may be used to show the state of the art but solely on the question of interpretation of the patent.

Mr. Darby: That is all I understand and use it for. It may be shown to establish the state of the art, but it is not limited solely to the purpose of interpretation. It can be used as the state of the art to limit the invention. Now if we mean the same thing by our two expressions, we are in accord.

The Court: At least the evidence is admissible under the general statement as has been made by many of the courts to show the prior state of the art.

Mr. Howson: Yes.

The Court: The further effect of it is a matter on which you gentlemen may or may not agree. I do not know. But it makes it competent. It can not be received for the purpose of building up anticipatory evidence to establish invalidity, not having been pleaded. But it may be admitted for the purpose of disclosing to the Court the state of the prior art; that might limit, I suppose as Mr. Darby says, if that is the situation, the alleged invention. I don't know. I can see how it might be held that it could be used so.

[fol. 201] Mr. Howson: It is received for what it is worth and I have made my position clear.

The Court: And when you file your memorandum you may submit your authorities as to how far I may go in giving it consideration.

The Witness: Do you want me to describe this?

Mr. Darby: Yes, please.

The Court: Is this the one that you said you believed was built in 1912?

The Witness: Yes.

The Court: All right, go ahead.

The Witness: I do not know just when they were built, but this has been here since 1914.

The four photographs, numbered 1, 2, 3 and 4, show what is known as a Lamb machine. The Lamb machine is a flat or straight machine with two needle beds placed at an angle to each other so that the needles in each bed may cross each other when desired, although they may work independent beds, and when operating as independent beds they produce flat fabric, and when operated alternately as a two-bed machine thread may be fed down one of the beds and back down over the other bed, and therefore produce tubular fabrics. The two beds are clearly shown in photograph No. 2, the needles being also shown very clearly in this picture.

The carriers, of which there are a number, are shown at 1 in the various photographs, but very clearly in the Fig. 2. These carriers are traversed back and forth by suitable mechanism. That is most clearly shown in Fig. 3 in which [fol. 202] an arm hinged near the floor 3 is moved backward and forward by suitable link mechanisms.

In order that the carriers may be traversed a greater or lesser extent, there is provided at each end of the machines spindles 8 and nuts 7. This is most clearly shown in Fig. 1.

These spindles are fitted with ratchet mechanism in the form of pin discs, the pins being shown at 9 most clearly in Fig. 1, two pawls being provided, numbered 10 and 11, and one pawl working on one — the disc and the other pawl on the other side, the end of these pawls being so shaped that one of them may engage with the pins 9 to pull the disc in one direction, and the other one push against the pins 9 to turn the disc in the other direction, suitable gears being provided to in this manner rack, partially rotate the spindle 8 in either direction, so that the ends 7 can be moved in or out step by step.

A pattern chain 13 is shown in view 3 for controlling the time of operation of those pawls. The actual operating means provided for the pawls is the camshaft 12 which extends throughout the length of the machine. This is the camshaft on which all the cams of the machine are mounted to give the proper motion to the operating parts, and photograph 1 clearly shows the cams on the end of this shaft for causing the pawls to rack at suitable times. In other words, the shifting of the camshaft is what operates the pawls, the shifting either being in one direction or the other so that either one of the pawls can be active.

This machine is further provided with implements known [fol. 203] as narrowing points more clearly shown in Fig. 2 or photograph 2. These points are numbered 15, there being a group of them at each end of each needle section. These implements engage with the needles in such a manner as to lift off the loops and deposit them on adjoining needles. The particular machine shown is fitted with four sections.

Q. Did you ever see any of the machines with more or less than the number of sections than the machine shown in the photograph?

A. Well, I would not be sure. It seems to me I saw one in Germany of six sections, but I would not be sure.

Mr. Darby: I offer in evidence the photographs identified by the witness.

Mr. Howson: We object to the offer on the ground that they purport to illustrate the machine claimed to have been in prior use, and we have had no notice of any such prior use in the answer. We object to the offer for any use other than to show the state of the art as affecting the possible scope of the claims of the patent.

The Court: It may be received subject to that objection.

(Marked Defendant's Exhibit I.)

Mr. Darby: I now offer in evidence certified copy of the file wrapper of the patent in suit, and for the sake of convenience, if the Court please, I think it would be easier reading to use the printed copy in volume II of the record appearing at page 207.

(Marked Defendant's Exhibit J.)

[fol. 204] Mr. Darby: The patent in suit on its face purports to be a substitute for an abandoned application, serial No. 569,559 filed June 9, 1922. I offer in evidence a certified copy of the abandoned application referred to and for the reason stated will utilize the copy printed in Volume II of the record of the Hofman case beginning at page 449, et seq.

(Marked Defendant's Exhibit K.)

The Witness: I am familiar with the file history of the patent in suit and the abandoned application just referred to.

I will refer to the history of the abandoned application so as to develop the history of the patent in suit from the very

beginning and state what type of product is described by the abandoned application.

This application relates to a split-seam mechanism for full-fashioned machines to control the split-seam loop or adjacent yarn sections.

Q. What type of a suture is that?

A. What do you mean by "what type of a suture"?

Q. Is that the same as a spliced seam?

A. Oh, no; no.

Q. Is there anything contained in the specification that indicates that the production of any other type of suture than a split seam was contemplated?

A. No; I have not found anything.

Referring to a drawing forming part of that application beginning at page 471, the mechanism there illustrated would not produce any type of a suture other than a split seam.

In this drawing my attention is called to the pattern chain 70 in Fig. 1. There is not shown any mechanism for effecting the operation of the pattern chain 70.

[fol. 205] In Fig. 2 there is no mechanism shown there for effecting operation of the pattern chain 70. There would have to be provided mechanisms for actuating pattern chain 70 in order to make this device operate. There is not any mechanism for actuating the chain 70 disclosed in any of the other drawings of the application.

Q. I notice that the first Office action as it is found on page 463 requires, the Examiner says, to state "the means for actuating lever 71 should be shown and described." In your study of the file history of this case was that requirement complied with?

Mr. Howson: I object to that.

The Court: Yes. I should think that would be improper. Objection sustained.

Mr. Darby: I have no doubt the document speaks for itself, but I had hoped to get the statement in without the necessity of the Court's laboring in going through it, and I just call the Court's attention to the fact that——

The Court: There never seems to have been an amendment to that.

Mr. Darby: There never was any amendment. There was first action which was a rejection and the case was abandoned. I might state that at the time this applica-

tion was rejected the time within which an answer could have been filed was one year. That is at that time. Since then it has been changed to six months; so that an action should have been received, to avoid abandonment, by April-18, 1924. That is correct, isn't it, Mr. Howson?

[fol. 206] Mr. Howson: Yes.

The Witness: I will now refer to the application for the patent in suit beginning at page 207. I am referred to page 210 and to the last paragraph on that page, and asked whether that paragraph refers to a type of fabric other than split fabric. I will say no.

As to what I understand to be meant by the reference to "reinforcing thread," as contained in that paragraph, I will say that the term "reinforcing thread" when used with split seams means that one of the areas of the split portion is thicker than the adjoining area, and as I read the patent to be drawn for split fabrics, I naturally read the term in that way.

I am referred to the drawings of the application as filed, beginning at page 271, and my attention is called to Fig. 1 of the abandoned application, and I am asked whether I find any differences between those drawings, with the exception of the mechanism at the right of the figure consisting of two levers and a vertical rod, which are not designated by any reference character. I will say that in the abandoned case, there are no mechanisms shown for a ratchet chain, whereas in the file wrapper of the patent in suit, there is some form of mechanism shown. I can not make out, as one skilled in drawings, what that mechanism is.

I understand the necessity in a device like the patent in suit to remain stationary, inoperative, while narrowing is being effected. I agree that it is absolutely necessary to have the reversely-threaded spindle 11 of the patent in suit remain stationary while work is being effected. During [fol. 207] narrowing, the carriers do not move across; they are stationary. They do not feed on, so that the spindles if they were racked during work, the carriers would be shifted, so that in the next course or whatever course they were supposed to be shifted in, your pattern would be wrong, and you would destroy your pattern.

In the structure as shown in the patent in suit, in so far as it is described in the specifications of the patent in suit, the spindle 11 does not remain stationary during narrowing, it is racked during narrowing.

In the patent in suit if the shaft 5 is shifted to the right in the manner described, as necessary for successful operation, the spindles would be racked. As to what would happen to the various cams and rollers appearing on it, I would say that they would drop off the cams. I cannot see how it would be possible for the shaft 5 to be returned to its position under those conditions.

Mr. Darby: Now, if the Court please, for convenience I have marked up a copy of the patent in suit underlining in red the changes that have been made in the new application of the patent as issued, as compared to the application as it stood when it was abandoned. I submit this as a matter of convenience and I will offer copy of the patent in suit so marked.

(Marked Defendant's Exhibit L.)

Q. Will you please refer to Fig. 10——

The Court: Everything in red is supposed to be new?

[fol. 208] Mr. Darby: Yes, your Honor.

Mr. Howson: New, Mr. Darby, as compared with the abandoned application.

The Court: That is what I mean.

Mr. Darby: Yes.

Q. Will you refer to Fig. 10 of the patent in suit and state whether or not in your opinion the structure shown by the patent in suit,—the mechanical structure shown by the patent in suit—could make that design?

A. No. Because there is no means shown in the patent for changing over from split knitting to plain body knitting. I mean to knit, let us say, the first course below the lowest point of the design. At that point the carriers that had been knitting short strokes must commence knitting, or at least one of the carriers, must commence knitting across the width of the fabric.

I heard Mr. Meyer's explanation how that might be effected by leaving the splicing carrier idle in the middle of the frame and shutting down the machine and taking off the friction boxes. I do not agree with him as to that

possibility or the practicability of it. The reason for my disagreement is as follows:

You see, if that were done the carriers would be idle opposite the needles, not at the end. You have the idle carriers at the end of the machine. If you idle them in the middle of a section, it would be objectionable for many reasons. For instance, they might not stand where you think they would stand and that would mean the carrier 2 which projects below the top of certain of the sinkers would interfere with the correct operation of the sinkers. That is, the [fol. 209] carrier 2 would not stand where it ought to. It has to stand within a very restricted space. Further, the carrier in feeding the yarn, as more fabric is knitted, would of course recede away from the needles, so that yarn, as soon as one course was knitted, would be to the back of the needle, extend through the needles to the beard side, which would interfere with the proper operation of the following courses, because that yarn, getting entangled with the sinkers, might allow any number of needles, right and left—in fact, might injure the needles. I don't just remember whether Mr. Meyer said that you could cut those yarns off, It seems to me he said that you could idle them in the middle of the section by cutting the yarns off. If you did that, it would first of all be a long job. You would have to hold the machine up and if it is a 24-section machine, you have to get rid of two carriers; you would have to get rid of one of the side carriers or you might have to get rid of the selvage carrier or you might use the selvage carrier as a body carrier, so in the section you have to cut under. It is one thing to cut under at the end of a section but it is quite a different thing to cut it in the middle because that would mean you would have to rack your needle bed. In order to do that you would have to get hold of the yarn to cut through, and if you cut it off without getting hold of it it would injure the carrier. You would have to do that in 24 sections and two carriers and each section, and of course that is impossible or impractical unless it is a hand machine. If you operate a hand machine you could probably do that, but not with an automatic machine like these.

[fol. 210] Q. Could you do that with a machine used for manufacturing full-fashioned hosiery?

A. No one would would try to do that.

Q. Now, Mr. Miller, will you please refer to the defendant's machine. I think you have prepared drawings of the defendant's machine charged to be an infringement.

(I will tell the Court quite frankly that we went to the trouble of putting our drawings in the defendant's machine because of the difference we believe existed between them and the photographs which the plaintiffs have produced.)

We have provided enlargements of those drawings and I have placed on the opposite easel the plaintiff's exhibit 34. Using these drawings as numbered 1; 2 and 3 that you have prepared, will you please point out the differences between the defendant's machine as illustrated in your drawings and the defendant's attachment as illustrated in Plaintiff's Exhibit 34, so far as they are pertinent to this controversy.

A. The defendant's structure as I know it has the stop pin 7 arranged for automatic motion to and from the carrier and those stops are on the defendant's machine undercut, so by moving them up and down you get a longer stroke with the carrier when the stop pin is up and a shorter stroke when the stop pin is down, whereas in the drawing submitted by the plaintiff of the defendant's structure those pins 7 are apparently intended to be put into action and remain there.

Q. What difference practically does that make?

A. That would mean that Exhibit 34 could not make split fabric; that could only make spliced fabric.

[fol. 211] Q. Whereas the defendant's machine does make split fabric?

A. Oh, yes. It is designed to make split fabric and uses more of those pins 7; in Exhibit 34 there are only two of them shown.

Q. Where is that shown in your drawings?

A. Whereas in the drawings that I prepared, there are four pins shown; they are numbered in my drawing, 28, 29, 30 and 31. That is these four pins here (indicating), more clearly shown on this one, whereas here there are only two pins, and these pins are undercut; in other words, they are flattened whereas these pins are not flattened. That is as near as I can tell. You won't get much good out of them flattened, because they don't move.

Q. I call your attention to the fact that the undercut pins are shown in the patent in suit; are the undercut pins in the

defendant's structure of the same type and do they have the same purpose and do they operate in the same way?

A. No, they do not operate in the same way and they are not for the same purpose.

Q. Will you explain the difference?

A. In the patent in suit, the undercut stops provide a delayed extended action of the carrier. In other words, as the carrier first strikes the stop and rests there for a moment and then the stop pin is lifted presenting a flattened part to the carrier and if the stop moves further both pins in that case move together up and down. In the defendant's structure, while the pins are moved up and down, they are not so moved for the purpose of getting delayed lengthening of the carrier action. They are raised to present a surface and to give a longer carrier stroke, just about the time [fol. 212] the carrier starts the stroke, it never strikes the pin, then delays and goes further and all the pins, the four pins of defendant's structure do not move together for if the diagonal line is to be inclined in one direction, a pair of the pins are removed, and if it is to incline in the other direction, the other pair of pins are moved, but in no case is there a delayed lengthened action as in the plaintiff's.

Q. In the patent in suit, this delayed motion which comes by the undercut stop is for the purpose of floating the thread?

A. So I understand. There is no floated thread in the defendant's structure.

In the patent in suit, the undercut stops are tilted with each course. In the defendant's structure that is not true. As I said before, in the defendant's structure—let me say this first—in the defendant's structure, in place of having two stops undercut on both sides as in Schletter, so that when you move one stop you are really moving two undercut surfaces. When you move the two stops in Schletter you are moving four undercut surfaces at once; in the defendant's structure the undercut stops are in the form of four pins so that you can move certain of them without moving the others. The whole reason for this thing, for those undercut stops as the defendant uses them is to prevent the formation of holes when you produce bias split junctures. In making a split, you can make a lap wide enough for any hole that may be formed, but for many years the demand has been for narrow sutures, and in producing narrow sutures, if you use the Schletter structure, the Schletter

stop arrangement and the way he moves it, you form holes. [fol. 213] There are two things you can do, either widen the suture or you can use the narrow suture which the defendant does by changing the operation of those pins and the stroke of the pins entirely.

Q. Just one more question. In the defendant's structure do the stops lift at any time other than when racking occurs?

A. Only when racking occurs, and then not all four of them. Two of them are lifted when the racking occurs we will say inwardly, and the other two are lifted when the racking is outwardly.

Q. And in the structure of the patent in suit, when does the tilting occur with respect to the racking? Is it ever at the same time?

A. Will you repeat that?

Q. (Question read.)

A. Why, no, because there are no cams there. You see, that is a question of timing, but there aren't any cams shown in that. In none of those drawings are there any cams.

Q. In producing a split fabric, I mean with an undercut stop such as is employed by Schletter, does not the tilting of the stop always occur at the beginning of the course?

A. No, I would not say that. As I understand the type of suture that Schletter described, according to this description, is the type known as herringbone, that is, in which a thread is floated. Now, to make that kind of a suture, the undercut stops or the tilting as you call it, movement of the undercut stops or tilting must take place at the time the needles leave the nose of the sinkers, just prior to the knocking over. I have drawings to show that.

Q. When is that relative to the laying of the course, is [fol. 214] it the beginning, the middle of it, or the end of the laying of the course?

A. It is after the course has been laid, and before the next course is started.

Q. Have you pointed out all the differences that are pertinent to this litigation?

A. One thing I may not have made clear. The movement of the stops in the defendant's structure is not like that which I described at all, because in there we have a structure in which they are not making herringbone, because you could not make a herringbone with the defendant's structure.

Q. You could not make a herringbone suture with the de-

fendant's structure. Was the herringbone suture one that you understand the patent in suit is directed to make?

A. It is mentioned all through about floats; you do not make floats in a fabric of the defendant's structure. That is a characteristic of the herringbone suture.

Q. Will you please briefly designate the mechanism provided in the defendant's machine as you have illustrated it for effecting a lifting of the stops as you have described it?

A. That is best shown in the end view, sheet 1. The mechanism that lifts the pins 28, 29, 30 and 31, is tied in with the mechanism that racks the spindle. In other words, as the spindle is racked, certain of the pins are raised so that the undercut portions are in position to arrest the carrier in a position to the roller then it would stop if the pin had not been raised. I think I will have to describe this a little—no, I see that does not answer your question. You want to know how to raise the pins. There are two pawls for racking the spindle. There are two ratchets at the end of the spindle, ratchets having opposed teeth, and [fol. 215] the pawls being in position, one over and one under the center of the spindle, and the pawls being pivoted on a circular lever, so by a movement of the lever these pawls go to and from the spindle, either of the pawls, depending upon which one is in action against the other spindle. When the lower one is in action it throws the spindle in one direction; when the upper one is in action it throws the spindle in the other direction. Actually, as shown in this drawing, these pawls are numbered 34 and 35, in a clockwise racking, by that I mean turning the spindle as shown in this view in the direction as the clock moves it moves the stop nuts apart to widen the selvage. So when the pawl 35 turns the spindle clockwise the nuts 16a and 17a are moved apart. Now the mechanism that raises the proper pins so as to change the stroke of the carrier it is in the form of the part 22 which is more clearly shown in the upper left hand illustration. This piece 22, when the pawl 35 moves to rack—causes it to be slightly turned by pin 35a forming part of pawl 35 contacting with it, so that the upper end of the piece 22 acts on a small lever number 26 which rotates rod 24 and on this rod 24 there are a series of small levers 24a that have a small rod 24b, so designed in their ends so that as the cam 22 moves it raises the small rod 24b and wires fastened to the end that is of the stop

pins are rotated around this rod 25b, so as the rod is lifted the pins are lifted. So you see, by racking the spindle in one direction with the pawl 35, two stop pins are raised, so that the actual stroke can be changed over what it would have been if the pins had not been raised. The reverse takes place when the bottom pawl acts on the other two pins, the [fol. 216] whole effect being to prevent the formation of holes in making the narrow suture, when you have a line juncture or suture line formed to the angle of the wale, unless you use some such system as here in the defendant's structure.

Q. How many chains does the defendant's structure employ?

A. One chain.

Mr. Darby: I offer in evidence the photograph of the small drawings numbered 1, 2 and 3.

(Marked Defendant's Exhibit M.)

Q. Do the drawings that have been offered in evidence as Defendant's Exhibit M correspond to the disclosure of the defendant's machine in the photographs, Plaintiff's Exhibit 2, I think it is?

A. I didn't get that.

Q. (Question read.)

A. I have never seen the photographs.

(Photographs handed to witness.)

A. These photographs show the wires that lift the pins that I stated were missing in the plaintiff's drawing of the defendant's structure.

Q. That is Exhibit 34.

A. Yes. In these photographs the pins can be automatically moved up and down, because they have to be moved when you make the split fabric.

Q. Do they also show the actuating cams?

A. I can see one edge of that, the little lever 22 I see that I was talking about. Oh, yes, it is clear here—oh, yes, the actuating levers are there.

Mr. Darby: I offer in evidence a folder containing United States Prior Art Patents consisting of an index and the [fol. 217] patents numbered accordingly. They are thirteen in number and I ask that they be marked as one exhibit.

(Marked Defendant's Exhibit N.)

Mr. Darby: I am going to ask this witness about these patents and to take them up in turn and to point out the pertinent parts of them and explain their operation insofar as this litigation is concerned.

Q. Will you do that please, beginning with the second, number 1,180,568.

A. The patent states that the mechanisms shown are improvements in knitting frames. Now a "knitting frame" is the same thing as a knitting machine. Abroad this is quite often used. This is a German inventor and the term "frame" is often used, but it means knitting machine. It is also stated that it can be applied to any straight machine including full-fashioned hosiery machines.

The apparatus is for knit-ing hosiery patterns from reinforcing threads and splicing. In other words, patterns can be produced by superimposing on the body fabric loops fed by another carrier, the pattern being produced by having fewer or more loops so superimposed.

Q. Referring to the patterns that are illustrated in Figs. 1 and 2, if the device can make those pat-erns, can they make any desired pattern between the selvage edges?

A. Yes, the patterns shown in the figures you mention are clocks or inserts. In the one shown in Fig. 1 there are a pair of clocks that start—or rather end at the place where the heel of the stocking is formed. In Fig. 2 the pattern takes the form of what I would call an insert [fol. 218] centrally disposed with the fabric.

Q. Will you please briefly describe the operation of the device which enables the production of those inserts or the spliced patterns?

A. As is common in full-fashioned machines there are a multiplicity of carriers shown. These carriers are numbered 4 and 5 in Fig. 1 and are fastened to bars 2 and 3 respectively. These carrier bars abut or rather the driving mechanism for these carrier bars abut against stops numbered 16 and 17. Said stops can be shifted endwise so that they can arrest the carriers in different positions by reason of their being provided with rack-like teeth and the pinion 11. This pinion 11 is caused to be rotated step by step by ratchet wheels so that when the 16th stop is moved outwardly, the 17th stop is simultaneously moved in the other direction. In this way it would be possible to produce the central clock like pattern shown in the drawings.

Q. Now, will you take up Patent No. 2, 1,217,411, and state in what respect this is different from the disclosure of the first patent?

A. This second patent is similar insofar as the controlling mechanism for varyingly positioning the carrier stop is concerned.

By the Court:

Q. Using exactly the same means?

A. It is not quite the same means.

Q. For all substantial purposes, I mean.

A. Yes. The important difference is in the arrangement of the carrier bars and abutments so that instead of forming clocks or inserts, the carriers vary the length of [fol. 219] their stroke from the selvages inwardly. That is, these carriers are caused to lay courses of varying lengths from the selvages inwardly, whereas in the other case the carriers will vary the length of the courses without ever going to the selvages.

By Mr. Darby:

Q. Now will you refer to the third patent, the Chipman, 1,163,970, and describe the mechanism there insofar as we are concerned with it?

A. This patent would be of interest as there is therein shown on Fig. 1, sheet 1, a spindle having right and left hand threads for moving nuts simultaneously away from and toward each other. The end of this spindle is fitted with a multiplicity of ratchets, quite clearly shown in Fig. 2, said ratchets being racked by suitable pawls of which there are three or four, certain of them racking the spindle in one direction while others again rack the spindle in the other direction. The feature is quite clearly shown in Fig. 4.

Q. Let me ask you: You say that the spindle is provided with a multiplicity of ratchets with varying teeth?

A. No, not varying. I mean teeth opposed to each other. Some of the teeth are cut in one way and some in another so that pawls operating the spindles can be moved either backward or forward. They are provided with more than two ratchets.

Q. What is the object of having more than just the two ratchets?

A. Why, that works in with a very complicated pattern control mechanism that he has here. The additional ratchets are provided so that the spindle can be rotated to a greater extent.

[fol. 220] Q. In the Schletter patent in suit is the rotation of the spindle limited to the one-tooth arrangement?

A. Oh, yes. In Schletter you can move either forward or backwards but always the same distance.

Q. And with this attachment the spindle can be rotated greater or lesser depending on which of the ratchets is made operative at the time, is that right?

A. Well, I have not studied it with that particularly in mind. But all I was very careful about was to state it so that I said it had a multiplicity of ratchets having teeth that were cut opposed so that you can move the spindle backward and forward. I do believe, though, that there are five ratchets in there. Now there is a chain to control that, you know. That is, there is a chain here (indicating). There is a chain for controlling that and other automatic parts of the machine in Fig. 8. That is a pattern chain. That type is not used on the full-fashioned machine, but it effects the same result.

The spindle is provided in this Chipman structure for moving nuts backward and forward and thereby controls a number of needles that are made active or inactive. In other words, this structure is not employed to control carrier rods. The reason I refer to it is that it has a spindle threaded two ways which can be racked either backward or forward. There is one thing I want to call your attention to; the patents where you mention that it racks different distances, and that also racks the spindle backward to start the new stocking. I think that is the first place I have run into a statement like that on spindles. That is filed back in 1910.

Q. That is automatic racking back to start the operation again?

A. Yes.

[fol. 221] Q. Now will you please refer to the Gee patent 1,014,573.

A. The Gee patent shows a pair of carriers having cam-like or stoplike extensions so that the traverse can be so arrested as to cause them to produce the design shown in Figs. 1 and 3. That is the stroke of these carriers can be longer

or shorter. There is operating this a chain to enable the carrier stroke to be varied and as the attachment is stated to be applied to full-fashioned machines, I assume the chain would control the timing.

Q. I call your attention to the statement on page 1, line 106, to the effect that the increase, step by step, or "throw of the bars A and A^1 to gradually increase or widen the design of the stocking while ordinary knitting of the same is going on" does that mean to you that that is in addition to the ordinary——

A. Yes. That would infer that the designs shown are spliced designs because while ordinary knitting is going on means there is a body carrier in action and then these two other carriers in the alternative scheme shown in Fig. 3 which shows four carriers in action, make a certain kind of pattern, but in both cases they are spliced patterns. By "splicing" I mean the superimposing of one yarn over the other.

The operation of the controlled stops is indicated as being automatic from the machine in Fig. 2.

Q. Will you take up the next patent which is the Kilburn patent, 19,370 of 1858, and point out what is pertinent in this patent to our inquiry?

A. This is a very old patent and the drawings are rather sketchy, but it relates to varyingly traversing carriers, or [fol. 222] rather a carrier, because at that stage of the development of knitting machines it was quite unusual to have more than one carrier in action at a time, but in this patent there are spindles shown to arrest the stroke of the carrier varyingly so that it could make a longer or shorter stroke.

The spindles here are shown at L, Fig. 1.

The Court: L?

The Witness: Yes, there is an L. It is very hard to see. L in Fig. 1.

The Court: It has to be "L" by the process of elimination. He has all the other letters there.

The Witness: I was impressed with the statement in this patent, and I am quoting now where the inventor goes on to state:

"If on the other hand"—that is paragraph 2, page 4—"If on the other hand the lower screw spindle has at one end a right hand screw and the other end a left hand screw

which threads operate on a nut screwed to one of the bumpers, the widening would be effected at the opposite edges of the work equally in opposite directions by the turning of the one screw L. Narrowing of the work may be effected by turning screw in the reverse direction to that for widening."

In other words, it was recognized as early as that that a right and left hand screw—that is two-way threaded spindles—could by moving it backward and forward effect the widening and the narrowing, and while true in this [fol. 223] patent—that is particularly this is concerned with widening and narrowing at the selvage, the same idea used on a supplementary carrier could control a short course in the same way.

Q. Will you refer to the Landenburger patent 1,134,749?

A. This invention relates to producing designs in hosiery by the use of short course selvage carriers. Examples of the designs that — be produced with the attachment are shown in Figs. 8, 9, 10, 11, 13, and 14. In the specific application of the invention the carriers are short course selvage carriers capable of splicing shorter or longer courses. The machine to which the attachment is shown applied is quite obviously intended to be a Cotton type full-fashioned machine. There are four carriers shown in action as shown in Fig. 4. These four carrier bars are fitted with suitable abutments, 40a, 41a, 42a and 42c, Fig. 3, so that they may be engaged with by suitable driving means and that said driving means can be stopped in its traverse by coming in contact with pins rigidly fastened in drums as shown in Fig. 1, these pins being of different lengths so that the stroke of the carriers may be varied in accordance with design requirements. There are two of these drums shown which are sufficient to produce the designs or patterns shown in the figures.

I am familiar with the commercial utilization of the drum type of pattern control. The Landenburger structure to my knowledge has gone into extensive use. There was a number of years ago, back along about 1925, yes, up to 1928, I should say, that the Landenburger attachment was on a great number of machines. It was used for making heels called high spliced heels, known as pointex heels. An [fol. 224] example of that type of heel is shown very clearly in Fig. 10, although twin heels and other kinds of patterns

were produced. In other words, anything could be produced with those pins because you could lengthen them or shorten them and get any design you wanted. But full-fashioned hosiery, you know, has never been produced in any great quantity in extremely fancy goods. I do not know why—because you can make all kinds of designs, but they are seldom used.

So far as the designs are concerned, you could make any design with the Landenburger attachment that can be made with the attachment that the plaintiff company sells, assertedly under the patent in suit. I actually used one of them back in 1927, I guess it was, or 1928, and produced all kinds of splits which is not what Landenburger talks about. He talks about spliced designs, but I have produced all kinds of splits. With suture inclined to the wales. Inclined both ways. Because you see here it is just a question of a longer or shorter pin; whether you incline one way or the other.

Q. Please refer to Lieberknecht No. 981,663.

A. This invention relates to a carrier stop spindle mechanism. It shows a reversely-threaded spindle clearly in Fig. 3 at 25, each threaded portion being fitted to a nut, 23 and 24. A ratchet being provided to rotate the spindle. The right and left threaded form of solid spindle shown will, of course, move the nuts away from and toward each other as the spindle is turned. The nuts are fitted with suitable surfaces against which the carrier abutments, of which a [fol. 225] number are shown, may be abutted and so have their traverse arrested.

This rever-ely-threaded spindle is mounted. Somewhere along the middle of the machine; about in the center lengthwise of the machine. The reversely-threaded spindle is automatically operated in one direction under power and it is operated in the opposite direction by hand, although the mechanism for operating it is not shown in this particular patent. That is how it is described. In that respect it differs from the patent in suit—with the provisions of the additional mechanism for rotating it in the opposite direction.

Mr. Darby: If the Court will permit me to change my mind in reference to the Landenburger patent, I will ask the witness to produce the samples and state when he made them and where.

The Witness (producing samples): I don't remember the exact date. It is marked here "1928." This sample was knitted, called a panel stocking. It was not made in connection with this litigation, but it was made in connection with another litigation. Now the other sample was made at the same time, and that shows twin clocks; twin clocks made of split fabric, the body of the stocking being gray and the clock black.

A two needle lap type of suture was employed in one of these stockings. The panel stocking is four-needle. The panel type is four-needle and the twin split clock is a two-needle lap.

[fol. 226] Mr. Darby: I offer in evidence the panel type stocking made with the Landenburger attachment.

(Marked Defendant's Exhibit O.)

The Witness: You see in using pins to stop the carriers, you could make any width of laps, and you can step any amount you want. If your pin changes a quarter of an inch in length, you can make the stroke a quarter inch longer or shorter and, of course, that is a thing you can not do with the spindle, because you can only get one change of position and that change always has to be the same.

Mr. Darby: I offer in evidence the second stocking made with the Landenburger patent, the twin clock split type.

(Marked Defendant's Exhibit P.)

Q. Then will you go on to the next patent, the Mueller patent, 1,564,438?

Mr. Darby: I might state, if the Court please, that this patent is a complete anticipation.

A. This patent shows a right- and left-threaded spindle; most clearly in Fig. 2; and a pair of nuts 25 and 26, which, when the spindle is racked move toward and away from each other by reason of the fact that the spindle is fitted with two ratchets, 35 and 36 having opposed teeth. The patent further shows two pawls, most clearly in Fig. 3, with chain pattern means for selectively making active one or the other of the pawls at desirable times, and pattern chain being shown for this perhaps in Fig. 4.

[fol. 227] The fabric shown in Fig. 1 is in the form of a design fabric with diamond-shaped pattern. It is stated

in the patent that the pattern — produced by splicing. The particular pattern shown has an outline inclined in both direction- to the wales.

This device, which is named on its face an attachment, is used in connection with the straight knitting machine.

Q. And will you point out if there is shown where co-operating yarn guide carrier bars are employed?

A. There are three carriers shown most clearly in Fig. 1. They are numbered 7, 8 and 34. There are opposed stops for certain of the carrier bars which have a stroke and the full width of the fabric being knit. That is most clearly shown in Fig. 2, the stops being numbered 32 and 33.

There is also a reversely-threaded spindle for moving the stops. That is shown in Fig. 2. The spindle number is 24. The stops are moved towards and from each other to vary the stroke of the bars controlled. Two opposed tooth ratchets are provided with suitable pawls.

Q. Is the chain device that you have referred to as illustrated in Fig. 4, is that the main chain control of the knitting machine, or is that an auxiliary chain?

A. It does not say, but I would not think it was the main chain. It looks to me to be just a little supplemental chain that has been hung there for that purpose. By a main chain it would have to be wider and have more room for more buttons.

The Witness: I will next refer to the Osterich patent, 1,655,688.

This invention relates to the production of diagonal split [fol. 228] fabric and shows the formation of this type of fabric at the toe of full-fashioned hosiery as shown in Fig. 8, the idea being to bring an angular ending to the sole of the stocking where it joins the toe. This patent only relates to the fabric, which is old, in order to illustrate the action of the mechanism to which the subject matter is directed.

In this patent numbers of carriers are stopped with a pin drum similar to the Landenberger type previously described. With such a device as shown angular junctures inclined in either direction to the wales could be produced, the design depending upon the length of pins used in the drum shown in Fig. 10. Actually the patent is directed to a minor improvement to the type of pin used in the drum.

I will refer to Fig. 9 of that patent. I stated that Fig. 1

shows a split type of fabric. The fabric shown in Fig. 9 is what is known as spliced fabric; that is in which loops are super-imposed over the body fabric, there being no split juncture.

The fabric design in this figure shows the inclines of the spliced areas diverging and converging; that is, the splicing carrier stroke is shortened and lengthened in accordance with design requirements.

Referring to the next patent, Rowlett 500,953.

This invention relates to improvement in straight-knitting machines, and is specifically shown and applied to what is known as Lamb machine. While the main object of the invention is to automatically introduce fashioning without holes, it, in addition, shows carriers stopped by a pair of connected spindles automatically actuated backward or for- [fol. 229] ward by a number of ratchets and pawls,—a Jacquard being provided to dictate the time of operation. The spindle is most clearly shown in Fig. 2, half of which is shown on sheet 3 and the other on sheet 4. The multiple ratchets are shown in Fig. 2 of sheet 3, as are the pawl levers, the ratchet being numbered G-13 and G-14, having opposed teeth.

The multiplicity of pawl levers are lettered F. Those opposed toothed ratchets are more clearly shown in Fig. 5 at the left hand side of this figure, as are the opposed operating pawls.

The Jacquard on control previously mentioned is operated by the ratchet Lc in Fig. 5. Such forms of pattern control are common in the knitting art.

I will briefly describe what I mean by the Jacquard and how it differs from a chain. A Jacquard has greater design possibilities for the reason that jacquards can be very wide and have a great number of control possibilities by reason of the fact that instead of Bumps being provided as in pattern chains, the cards of the Jacquard are fitted with holes which determine whether a part is to operate or not.

The device shown in this patent shows a main carrier, a splicing carrier, with both threads feeding various distances. The type of carrier stops used in this machine is similar to the type shown in the British patent to Black, 13,905.

The type of stops used here are those commonly used in Paget machines, which type of machine is the predecessor

of the Cotton machine. This type of stop is shown in Fig. 3a. The idea is to have the plunger or part that traverses the carrier marked H in this figure lifted out of the driving dog, Gx by the cam G—it is either a double [fol. 230] prime or an eleven, I don't know which——

The Court: Top G.

A. (Continuing.) In this manner disconnecting the carrier traversing the mechanism from the driver Gx. As previously stated this is a common type of driver and carrier traversing stopping means, and was used prior to the evolution of the Cotton machine. It performs the same function as the fixed Cotton stop.

As to whether this spindle for controlling the splicing carrier is in addition to the narrowing equipment, I will say that in the particular form of Lamb machine shown in this patent it was not customary to have narrowing as these particular machines are not provided with loop lifting implements so that machines of this particular class shape the fabric by widening. This was accomplished by bringing more needles into action when required.

This is the type of machine which would start at the narrowest part of the fabric and build to the widest part.

The mechanism for effecting the splicing consisting of the spindle that I have described is apart from and in addition to the mechanism for controlling the width of the complete fabric. That is quite separate. The needles are controlled—that is the question as to how many needles go into action depends upon the jacquard device which, so far as the needle control operation is concerned, is most clearly shown in Fig. 3.

I will now take up the Sowter patent 478,527.

[fol. 231] This invention relates to improvements in fashioning apparatus for straight knitting machines, it being specifically shown as applied to Cotton type machines for making hose, socks, pants, vests, or similar articles, its purpose being stated on page 1, commencing with line 12 of the patent.

The drawings show spindles, narrowing and carrier stopping spindles, fitted with multiple ratchets as shown in Figs. 1 and 2, there being multiple pawls shown which can engage selectively with the ratchets the means for selectively controlling them, being the pentagon shaped cylinder

V shown in Fig. 2 which is fitted with a ratchet W which may be engaged by a pawl X, so that the high portion of the pentagon can hold out of action the particular pawl and the low portion permitting such pawl to become active. Both spindles shown are fitted with opposed tooth ratchets so that the nuts which they operate can be stepped in or out.

One of these spindles controls the thread carrier. The other spindle controls the narrowing points. Both of them are provided with ratchet mechanism for rotating them in either direction.

My attention is called to page 42 of plaintiff's 1920 catalogue, Plaintiff's Exhibit 6, and am asked in what respect the mechanism shown in this patent—that is, at page 42—and shown in the Sowter patent differs from the showing in plaintiff's catalogue in so far as effecting racking of the spindles at will in either direction is concerned. I will say that the mechanism referred to is fitted with opposed toothed ratchets and two operating pawls so that the spindle K can be racked in opposite directions.

[fol. 232] Another difference is that the pawls are somewhat differently mounted on their operating yoke or lever C and they are similar in this respect to the Sowter structure which, as an example, mounts both of the pawls on a single lever K shown in Fig. 3 and effects racking in opposed directions by having the both pawls in the form of push pawls, one acting on one side of the spindle and the other on the other side of the spindle, whereas in the structure to which you have referred me, the pawls, which, as near as I can make out by this drawing which is rather small, E and D are both mounted on one side of the spindle, one of them being a pull pawl and the other a push pawl, one acting on the down stroke of the lever C and the other on the up stroke.

The other difference in the structures is that the pawl controls means shown in Sowter to determine which pawl is to go into action is considerably different than the selective means shown in the structure to which you have referred me, said selective mechanism being tied in with other mechanism and so not permitting a free and independent pawl selection as in Sowter.

Mr. Meyer, the plaintiff's expert in discussing and describing the operation of the mechanism shown on page

42 of the catalogue of Exhibit 6, stressed the fact that the mechanism was absolutely limited in its operation to a two-needle advance with a one-needle return. That is not true of the mechanism shown in the Sowter patent.

Q. And when you say "free selections of the pawl actua-
[fol. 233] tion of the Sowter patent," will you please expand that thought briefly?

A. In the Sowter patent, as previously stated, the pentagon member V provided with a ratchet W and a pawl X to rack the ratchet permits a free selection of either the back or the front pawl depending upou whether the pentagon has been allowed to come to rest with its high side on the front or the back pawl.

Q. And does it also provide free selection of direction of rotation of each of the spindles?

A. Well, that is what determines the direction of rotation, and that, of course, affects the nuts as to whether they are going to step in or out.

I would like to say one thing more about this patent. It is to be understood that the spindles shown in Fig. 1 are in duplicate, another set like them being provided at the other end of the machine as stated in the patent. That was a customary arrangement in knitting machines. That is the same arrangement that is now used in all modern machines—to have double spindles for narrowing and controlling the carriers during narrowing.

That is the arrangement that is illustrated, for example, in the recent advertisement of the plaintiff and as shown in Defendant's Exhibit B for identification. That is, the spindles are located at opposite ends rather than a single spindle. This looks very much like the Sowter spindle, but it controls supplementary carriers.

Q. Will you now turn to the Schletter patent 1,198,482, — which I will call the Court's attention is a prior patent to the same patentee.

A. This invention relates to attachment for straight knitting machines. As near as can be ascertained from the drawings, it is specifically shown applied to a Cotton type [fol. 234] machine. It is specifically intended to be used to reinforce; that is, splice portions above the heels of the stockings. The form of mechanism is in principle like the previously mentioned Landenberger drum, only that in this case the drum 17 shown in Fig. 3 is fitted with a cam

18 which is formed at its edges with notches or variously positioned stops, said drum being racked by the pawl mechanism shown in Fig. 4, a chain 39 shown in Fig. 1 controlling the time moving drum 17, and in this manner determining the pattern that can be produced with it. One form of such pattern is shown in Figs. 8 and 9.

Q. And is this pattern chain a supplementary pattern chain, that is, an additional pattern chain to the pattern chain ordinarily employed with a knitting machine?

A. I do not know. There is not enough mechanism shown as to whether the same chain controls, let us say, the camshaft shifting and the machine to narrow, which is one of the purposes of the main chain.

Q. Will you refer to the last of the U. S. Patents, the patent to Zwicky, patent No. 1,608,285?

A. This invention relates to lap-regulating mechanism in full-fashioned machines, the idea being to position the needles at the time certain of them have additional yarn kinked around them so that such needles will receive slightly more yarn than the others in order that the laps of the thickened area will not become too tight due to the additional yarn and therefore cut holes in the fabric.

That is what has been referred to in this trial as the variable rocker movement. That is a variable rocker motion.

[fol. 235] In the manufacture of the modern stockings where splicing or split seam work is performed in narrowing, variable rocker motion is necessary in order to produce a practical commercial product. It is necessary to do much more than formerly for the reason that formerly stockings were made, let us say, of 8-thread, and reinforced 25 per cent. over that. Now practically the entire production in the full-fashioned industry today, and for quite a few years back has been on sheer hosiery, which, let us say, is produced of 4-thread silk and yet the reinforced portion must be as heavy as it was for the heavier stocking, so that the ratio between the fine fabric and the thick fabric is today much greater than it was before. So that it being desired to make the sheer fabric have as small overlap as possible in order to make it as sheer as possible, it is necessary to tighten the loop at the sheer portion to the extent that if you added the increased ratio difference necessary for the relatively heavy splicings used today, your loops

would be cut in the heavy portion, so for that reason you have to have means to knit looser in the reinforcing or splicings today. That was not a particularly difficult thing to do, nor was the mechanism very costly until diverging and converging means of reinforcing or splitting the reinforced designs were brought into use. Such angular lines required that the rocker motion rather than be the free simple one that could be possible with the vertical line, the suture or splicing line had to have cams or some means to vary the number of loops that were loosened as the heavier portions of the fabric had longer or shorter courses of [fol. 236] heavy loops, so that today for all those reasons you have to have what is known as variable rocker motions and this is one form of variable rocker motion.

I will refer to the mechanism shown, particularly Fig. 4. In order to be able without having a great number of cams on the camshaft with cams varying distances in proportion to the variation of reinforced area, course length; in this device the roller mechanism is operated by cam, is shifted sidewise by a right and left-threaded spindle shown in Fig. 4. In other words, by shifting the nuts 70 and 71 toward and away from each other the rods 73 and 74 are acted upon, which in turn affects the position of the rocker motion so that it can loosen the stitch for longer or shorter courses.

Q. And the stops 70 and 71 on the reversely-threaded spindle controlling the rods 73 and 74—what are those rods 73 and 74, are they carrier rods, point carrier rods or what? I call your attention to page 2, line 118.

A. The reversely traversing nuts 70 and 71 also control the extra yarn carrier rods 73 and 74. I made an error; it was not rods 73 and 74; it is rods 80 and 81.

Mr. Darby: That finishes our consideration of the United States patents, if your Honor please, and we will now take up a consideration of the foreign patents.

First I offer in evidence copy of British patent to Mather, No. 7,746 of 1847.

(Marked Defendant's Exhibit Q.)

The Witness: This invention is drawn for machinery for knitting stockings, and it states, commencing at line 10, page 2, that the invention is drawn to a "stocking frame

[fol. 237] or what is commonly employed for making stockings, knitted gloves," etc.

The term "frame" is quite customary in the British patent art and means a flat or straight machine.

Certain features of the invention (as stated commencing with line 27, page 2) are drawn to "apparatus for conducting, carrying or traversing the thread across the machine from side to side of the work, with suitable improved mechanism for determining the extent of motion of the thread carriers, that is, effecting the shortening or lengthening of their traversing motions for the purpose of conducting the thread over a more or less number of needles."

This "together with suitable apparatus or mechanism for effecting the 'heeling' of the stocking or dividing the making of the fabric at this time into two, three or more parts."

It is stated (commencing with line 19, page 3) that a third feature consists

"in the application and adaption of the above-named mechanism called the Jacquard cylinder or box, revolving with its pierced cards, to the stocking frame or machine."

Certain of the carriers were used to produce courses shorter than the width of the leg as mentioned commencing with line 18, page 4, in which it is stated that

[fol. 238] "the thread carriers for working the two side pieces of the heeling part of the stocking being turned up out of the way of the workman."

This is further indicated by the outline of the stocking shown in Fig. 14. There are a number of carriers used—Fig. 14 is on sheet No. 1. The heel pieces are the pieces marked a, the instep portion of the stocking being marked b. This stocking incidentally is the type of stocking for an English foot, that accounts for the long central portion.

Two carriers a, as well as another carrier marked b, are clearly shown in Figs. 1 and 2, the b carrier in large scale in Figs. 6, 7 and 11. These carriers are traversed on a triangular-shaped guideway d, Figs. 6 and 7; means at each end of the needle section consisting of collars f, varied in position by each of the nuts i to cause the carriers to lay yarn over a varied number of needles.

The spindle k controls the traverse of the carrier. This is rotated in a step by step manner by a ratchet 16 and pawl 18, clearly shown in Fig. 6, motion being imparted to the pawl by the operator manually moving the pawl lever 17, Fig. 6. It is to be understood that this patent goes back so far that power machines were not in common use.

That is a reversely-threaded spindle that is employed. I call attention to Figs. 1 and 3.

The rotation of the reversely-threaded spindle k effected as follows: Fig. 6 shows the pawl—those two pawls are shown; 18 is the pawl that pulls the thing in one direction [fol. 239] and the pawl 19 is really a stop pawl to stop it from going backward accidentally. No, this spindle is racked in one direction.

Q. It is racked in one direction by hand operation, and how is it racked back? It must be racked back by hand, mustn't it, in this type of machine?

A. Oh, yes. It is a hand machine. There aren't any power parts in it.

The Witness: I have a note here relative to back-racking, commencing with line 27, page 2,

"apparatus for conducting, carrying, or traversing the thread across the machine from side to side of the work, with suitable improved mechanism for determining the extent of motion of the 'thread carriers,' that is, effecting the shortening or lengthening of their traversing motions for the purpose of conducting the thread over a more or less number of 'needles'," • • • "together with suitable apparatus or mechanism for effecting the 'heeling' of the stocking."

In other words, the stroke could be lessened or shortened, although of course, as previously stated, there is no mechanical operation involved.

Mr. Darby: I might state for the record, your Honor, that on page 7 of the specification beginning at line 19 is a description of how the spindle is located in either direction by hand by the operator, it not being a power machine.

I now offer in evidence DePass British patent No. 10,405 of 1884.

(Marked Defendant's Exhibit R.)

[fol. 240] The Witness: DePass British patent No. 10.405 of 1884. This invention relates to "Improvements in Straight Knitting-machines."

As stated, commencing with line 9, page 1,

"The said improvements relate chiefly to the production of fancy knitted goods in several colors, and to the production of strengthened knitted articles, whether on a stripe on the axis of the web, and upon the whole, or a portion of this stripe, or upon the parts of the said web situated to the right and left of the said stripe, and upon the whole or a portion of the said parts."

As clearly shown in the drawings, Figs. 1 to 5 inclusive, all types of reinforcements are to be produced, certain of them as shown in Figs. 2 and 3 have the outline of the reinforced areas inclined in both directions to the wales. That is, the end of the pattern comes to a taper.

It is specifically stated, line 19, page 1, that the design "at its ends diminishes in the form of a series of steps"; also, line 21, page 1, that the design "may, if desired, be merely in the form of almost straight oblique lines." The outline of the pattern may therefore be inclined to both directions to the wales.

The machine shown is what was at that time known as a Dutch machine. This machine was one of the predecessors of the present Cotton full-fashioned machine. It was of the Paget type. It was built in Holland and was similar to other Paget machines in that it had a group of needles mounted to move with carriers laying the yarn in [fol. 241] front of the needles so that sinkers could kink into loops. In other words, it was like the Cotton machine in this respect except that the needles in the latter were mounted vertically, and in the Paget Dutch machine they were mounted horizontally, as clearly shown in Fig. 12 of the drawings.

As is clearly stated, commencing with line 24, page 2, and as shown in Fig. 9, three carriers were used, as was of course necessary to produce fabric such as that shown in Figs. 4 and 5. It is also stated in this paragraph that a control chain or counter was used. This is shown in Fig. 8.

In order to definitely establish the type of fabric that this attachment was to produce, I would refer to the paragraph commencing with line 44, page 3, which states how with

"three carriers employed singly or in combination, fancy knitted goods in several colors, or strengthened, may be produced by the juxta-position of yarns of different colors and sizes."

I would like to call your attention to the type of carrier traversing means being used. I made a note of this in my previous testimony. This is quite clearly shown in Figs. 6 and 7. The dogs in Fig. 6, those sort of tapered things in Fig. 6, they take the gears and are acted upon by cam F shown in Fig. 7 which disengage them from the driving means. In other words, the stop in that case is the piece F. That is bar B at the other end of the machine—there is one at each end. These pieces B and F were moved in and out by the mechanism in this case in the form of racks. [fol. 242] The teeth of the racks can be seen at G at the right hand side of F. So by positioning the stops B and F where desired, controlled by the chain mechanism, the carriers can be caused to stop after shorter or longer traverses.

Mr. Darby: I offer in evidence British patent to Roe of 1869, No. 1,991.

(Marked Defendant's Exhibit S.)

The Witness: This patent relates to "Improvements in the Manufacture of Looped or Knitted Fabrics."

The drawings show a two-section, power-driven full-fashioned machine of the Paget type, which as previously noted was in use prior to the time of Cotton. The machine is fitted with a cam shaft, traversing yarn carriers of varied length, and narrowing mechanism, shown at I think that is Fig. 2—the various cams in that shaft are shown on sheet 5. This is an early form of machine, somewhat similar to the machine shown in the previously described Willett patent, except that in this machine the cams and various power parts to control the mechanisms have been added. The machine is fitted with traversing yarn carriers shown in Fig. 5, the yarn carrier being numbered Q2, and there is also a narrowing mechanism shown. This takes the form of the ordinary narrowing points in use today, shown in Fig. 5, the points being numbered F3.

It is stated, commencing with line 27, page 3, that

"The carriers are operated" (meaning stopped) "by [fol. 243] means of a right-handed screw and a left-handed screw, each of which are provided with a notched disk—"

These screws are quite clearly shown in Fig. 7 and they are lettered S. Each screw being

"provided with a notched disk" (ratchet) "secured to one end; between these disks is a hand lever and reversible paw's, which lever and pawls are operated by hand, or"

as it is stated,

"they may be operated upon by a cam and levers in such manner as to cause widenings or narrowings to be made."

The last quotation is from the patent.

Upon examining the drawings, it will be seen in Fig. 5 that the carriers are in the form shown at Q2 and that they are fastened to a bar Q1 which can reciprocate in a larger bar Q. Fastened to the bar Q1 there is a member S13 which can be engaged with by either one of two traversing pawls, as shown in Fig. 7. The reason I am describing this in detail is because of the fact that the patent being so old, it is not shown so well, but it is all in there. These traversing pawls are fastened to a box S6, Fig. 5, supported by and traversing on a fixed bar S5. The box S6 is fitted with a downwardly depending pin S7, which is connected to a chain S14, said chain reciprocating backward and forward, all as shown in Figs. 5 and 7.

Mounted in front of the machine are spindles S, one having a right hand and the other a left hand thread and each [fol. 244] being fitted with a nut S12 as shown in Fig. 7. Each of these spindles is fitted with a ratchet S3 and reversely-racking pawls S4, as shown in Fig. 5. These ratchets and pawls are mounted closely adjacent to each other, as shown in Fig. 7, a single lever supporting and operating all the pawls, so that the operator may, by moving a lever forward as part of the ratchet pawl lever, cause a partial rotation to be given simultaneously to both threaded portions of the spindles; the pawls are shown as being manually movable into position, so that the two halves of the spindle can be simultaneously racked backward or forward.

I want again to remark that the inventor had in mind moving this spindle mechanically as stated in line 27, page 3, in either direction. I am not sure. It is very hard to figure how it was operated, so I want to get into the record how it operated.

The S9 carrier-traversing pawls, Fig. 7, discontinue the traverse of the carriers by contacting with their cammed ends, disengaging means S10 and S11, said means being found at each end of one of the sections in Fig. 7. These members S10 and S11 are shifted toward and away from each other by being formed part of or connected to their respective spindle nuts S12, two of which are shown in Fig. 7—one threaded right hand and the other left hand. Each stop nut is further provided with a projection S12 shown in Fig. 5, which may be engaged with its respective member Q5 forming part of the traversing carrier bar Q1. When Q5 is in position to stop the carriers, therefore, it contacts with its variably positioned nut stop S12, as the carrier [fol. 245] driver pawls S9 are disengaged from the carrier members S13 at each end of the stroke.

We therefore have in this structure a right and left threaded carrier stop spindle, which while shown separated into two pieces, obviously could have been made of one piece. The spindles are fitted with nuts which move to and from each other as the proper pawls engage with backward and forward racking ratchets, in this manner making it possible to stop the carriers in varying positions and so lay the yarn over a greater or lesser number of needles.

Mr. Darby: I offer in evidence British patent to Willett, et al., No. 573 of 1871.

(Marked Defendant's Exhibit T.)

The Witness: This relates to "Improvements in Machinery or Apparatus employed in the Manufacture of Looped or Knitted Fabrics."

The machine shown is a one-section flat machine common in use at the time this invention was filed. The machine was organized to narrow the point holders N^1 being shown in Fig. 3.

It is stated, commencing at line 30, page 4, that when the machine is arranged to produce "fancy fabrics we employ similar apparatus with the addition of the required thread carriers to supply threads of divers colors."

There is provided at the front of the machine a right and left-threaded spindle, more clearly shown in Fig. 2 and designated by the letter L in Fig. 3. The threads of this spindle engage with nut-like members M, movable backward

and forward at the time the spindle is racked backward or forward.

The nuts M are connected to the right and left portions [fol. 246] of the spindle respectively, moving toward and away from each other as the spindle is rotated backward or forward and so through the extensions M^1 position the yarn carrier stop members R2 in the proper position to cause the carrier to traverse a shorter or longer distance and so feed yarn to a lesser or greater number of needles.

In order that the spindle L may be racked backward and forward, there is provided on each end of the spindle a ratchet having teeth operable by the pawl in either direction of rotation. There is also an automatic racking mechanism having pawls which are capable of being manually moved into either of two positions of contact with the ratchets previously noted, enabling the spindle to be racked backward or forward. This automatic racking mechanism consists of a series of levers and links, one of the levers of which is fitted with a roller, and so on.

It must be borne in mind that full automatic machines were not common at the time this patent was filed, but the spindle could be racked backward and forward mechanically by power.

The select means as to whether the pawl could be engaged to rack backward and forward was left to the operator to do manually.

The stops controlled by the spindle, they in turn controlled the carrier rods which traversed less than the full width of the fabric being knitted.

Mr. Darby: I offer in evidence the German patent to Laue and Timaeus, No. 21,332 of 1881.

(Marked Defendant's Exhibit U.)

[fol. 247] The Witness: This patent shows a six Cotton type carrier bars applied to a Lamb machine. As has been previously brought out in the testimony, the characteristic feature of the Cotton machine is the multiplicity of carrier bars—long carrier bars on which carriers are mounted, and this patent is of interest in that it shows the same type of carrier bars used on another type of machine known as the Lamb machine. These carrier bars are clearly shown in Figs. 2 and 3, the carrier tubes or yarn ends being shown at 1, 2, 3, 4, 5, and 6.

This patent is merely to show it was common in Lamb machines to use multiple carrier bars.

Mr. Darby: I offer in evidence copy of British patent to Black, No. 13,905 of 1887.

(Marked Defendant's Exhibit V.)

The Witness: I refer to this patent merely to make it absolutely clear that the Paget type of carrier stop machine previously referred to is in effect like the Cotton type. This is clearly shown in Fig. 2; and in this figure a carrier is shown at F as being mounted on a saddle or slide on the bar A2, capable of being slid along the length of this bar either backward or forward. This saddle is formed with two latches, one of which is shown engaged with pawl *b*, and as shown, this pawl *b* is now ready to traverse the carrier to the right, there being two such pawls, *b* on the saddle, and B which is slid back and forth on the bar A. In operation, there- [fol. 248] fore, the saddle B would now move to the right and its pawl *b* pick up the carrier F. To the left of the carrier saddle this piece is unnumbered, but I think I will put a number on it. I will call it 1. This is really the stop piece against which the carrier abuts. There is a similar piece on the opposite end of the machine. So that as the carrier finishes its stroke at the right, the right hand pawl *b* will have lifted by the hump of the right hand cam 1, and by contacting with the cam the pawl will be entirely disengaged from the notch of the carrier F. The same action takes place at either end of the machine. It will be noted that there is an adjusting screw provided under the hump cam for actively stopping the carrier between needles as is necessary. In some of the other patents of prior art where I stated that the Paget type of carrier was used, this is the type I meant, and it can readily be seen that the hump cam 1 here shifted on the bar A2, so that a varied stop of the carrier can be effected, so that its stroke can be shortened and lengthened if means are provided to move these hump cams. It is also of interest to note that this patent furnishes a multiplicity of carriers. I would further like to say that the Paget machine, which as previously noted is the predecessor of the Cotton machine, made all kinds of fabrics having short courses and in every way produced regular full-fashioned stockings. This is well known to anyone who is skilled in the hosiery art.

[fol. 249] Mr. Darby: I offer in evidence British patent to Woodward and Shaw, No. 19,627 of 1891.

(Marked Defendant's Exhibit W.)

The Witness: This invention relates to Improvements in the Type of Knitting Machinery generally known in the trade as Cotton's. The invention is directed to improvement in yarn carrier stop spindles, Fig. 1 clearly showing a solid right and left threaded stop spindle. The inventor states, commencing with line 25, page 1, that

"The chief object of this invention is to obviate the necessity for the attendant who has the machine in charge, having to manipulate the racking arrangement" (spindle) "at both ends of the frame after each set of goods or parts of goods has been completed."

He means by that that it was customary to have spindles at each end of the machine so that by providing solid right and left spindles he had the spindles all at one place, so that whatever the operator had to do, he only had to go to one place.

Continuing, the inventor states,

"At one end only of the machine we fix a worm" (that is a spindle) "frame carrying two separate traveling slides.

"One portion of the screw" (spindle) "is cut with a left hand thread the other portion with a right hand thread, so [fol. 250] that when the screw is revolved the traveling slides" (nuts) "move in opposite directions.

"To these traveling slides" (nuts) "are fixed the stops controlling the various thread carriers."

As shown in the drawings, a solid right and left threaded spindle G is provided to which is fitted a pair of slides or nuts—one threaded right hand and the other left hand. These nuts D and D^1 are formed to provide supports for movable stop slides K, K^1, M and M^1, against which carrier abutments F formed on carrier bars E can stop, thereby limiting the traverse of the carrier bars. The same nuts are provided with extensions C and C^1, against which loop-lifting point bars B and B^1 can abut and so be shifted in conjunction with the greater or lesser traversing stroke of the carriers E.

The means for racking these spindles is not shown. It is merely stated, commencing with line 12, page 2, that,

"O is a pinion on the screw G" (spindle) "by which a step by step revolving motion may be transmitted to it in the ordinary way whenever the narrowing rods are to be shifted."

It is further of interest to note that the inventor states that the spindle can be racked in opposite directions. These traveling nuts may move in opposite directions, which infers that the spindles are intended to be run backward and forward.

[fol. 251] As to whether this mechanism could be used to produce any styled design intermediate between the selvage edges of the fabric being knitted I will say that the form of mechanism shown has attached to it a means to shift the narrowing points so that if designs were to be produced inside the selvages, it would be necessary to disconnect the narrowing portions from it. There are various forms of mechanisms in the prior art that permit a shift of the narrowing mechanism from one spindle to another. If the narrowing mechanism were disconnected, then of course the spindle structure shown with the stops to control carriers as you state; as it is shown, however, the narrowing takes place when the course is changed.

In other words, the mechanism provided by Woodward was for positioning, stopping carriers at varying positions during the process of narrowing.

Mr. Darby: During the process of narrowing.

I offer in evidence British patent to Lamb & Noon, No. 15,129 of 1889.

(Marked Defendant's Exhibit X.)

The Witness (continuing): I have some larger drawings of this. This is a very important patent on the points at issue here and I have prepared larger drawings.

This invention relates to an improved mode of manufacturing striped, knitted fabrics, as stated in the title. It is further stated, commencing line 16, page 2, that the "invention relates to an improvement to the knitting of hosiery [fol. 252] with longitudinal or downright stripes," and in line 19, page 2, "We now propose to produce these downright stripes in a zigzag form automatically," and as stated,

commencing with line 27, page 2, it is proposed "to give the striping thread carriers * * * a continuous traverse on one side of the stripe until the required amount of deviation is reached, and then reverse progressive traverse motion of the thread carriers," and so forth.

As stated, commencing with line 39, page 2,

"The striping thread carriers * * * are controlled by means of stop slides * * * to produce the irregular stripe, so racking in and out the pattern, and certain other stops, as to give the several thread carriers the progressive motions required."

The specific fabric that the device herein described is intended to produce is formed with split sutures. There is an explanation of the method of producing the lap commencing with line 45, page 2.

It is stated in line 54, page 2, that

"the slides will then be racked in the opposite direction to shift the progressive motion of the thread carriers to the right until the requirements of the zigzag pattern in that direction are reached. The racking of the slides will now again be reversed and so on until the zigzag stripe is completed."

An example of the types of fabric that the attachment is to produce is clearly shown in Figs. 8 and 9 of the patent.

[fol. 253] Q. Which are not reproduced on these drawings?

A. No. It is stated on line 4, page 3, that

"The slides are racked in and out, as required, by a train of gear wheels, which impart an axial motion to the traversing screws of the slides."

The device shown in Fig. 1 is applied to a conventional type of full-fashioned machine in which as usual the needles are rigidly fastened in a needle bar, which, as in other machines of this type, make the necessary movements to form the loops in conjunction with the sinkers.

The machine is shown as having 5-yard bars numbered 1, 2, 3, 4, and 5. In the particular type of fabric that is being produced the carriers 1 and 2——

Q. Let me interrupt there, Mr. Miller. Will you please describe the operation from these drawings so that the operation will be understood?

The Court: The thing he is talking about now is the thing that is shown on the drawing; 1, 2, 3, 4 and 5.

Mr. Darby: If your Honor can see that, all right. Go ahead.

The Witness (continuing): In the particular type of fabric that is being produced the carriers 1 and 2 shown in Fig. 3 produce the fabric from the selvage to the designs, while the carriers 3 and 4 each form one of the two designs, with a carrier 5 producing the body fabric between the two designs.

[fol. 254] Speaking of the designs now, they are those in purple and blue.

The Court: Different colors?

The Witness: Yes. The design part is the purple and blue color.

The Court: Yes.

The Witness (continuing): In other words, the carrier 5 produces the green part or the part between the design.

Carrier (1) in this particular adaption is used as the right hand carrier and is stopped at a selvage by a stop carried by a slide (c) at the right hand end of the machine, said slide being fitted with a nut connected to a single-threaded spindle as shown in Fig. 4.

The same arrangement is provided at the other end of the machine to stop the carrier (2) or the left fabric-forming carrier, as shown in Fig. 3a.

The spindle for the slide (c) is rotated in a step by step manner by the ratchet and small motion and a train of gears, just as the selvage formation in a regular full-fashioned machine is automatically altered to produce wide and then narrow body fabric. In other words these two edge carriers or selvage carriers so-called, one that produces the red fabric and the yellow like fabric——

The Court: One and two?

The Witness: Yes. They are stopped by the (c) stop which is just as they are in a regular machine—end stops. And if the fabric is to be fastened that is the stop that does the fashioning; the new feature being that series of stops [fol. 255] which is shown in Fig. 3 to be left of the (c) stop.

The carrier (1) is provided with an abutment, as clearly shown in Fig. 3, which is capable of contacting with a stop through carried by the stop lever (H) at the end of its traverse inwardly from right to left.

In other words, as that carrier moves from right to left it abuts against that screw.

The same type of abutment and stop is provided for carrier 2 at the other end of the machine as shown in 3a.

The stop H found at the right hand end of the machine, as shown in Fig. 3, is mounted on a slide F, which is free to move parallel to the carriers in either direction. That is the F slide that has nothing to do with forming the heels or shaping the garment. That has to do with positioning the carriers to make these designs. So we have a situation here where our end stops are the stops (c), the new stops and nuts, and so forth, provided at F with various screws which can stop all the carriers when they are making this pattern work.

This slide F as shown in Fig. 4 is fitted with a nut for engagement with a threaded spindle, said spindle being step rotated back and forth by the ratchet (i) and (i^1). The ratchets have opposed teeth, operated by suitable pawls (i^2) and (i^3) which are connected to a roller lever (i^2), said lever being automatically operable by contacting with a cam (i^3) attached to the cam shaft of a machine, as shown in Fig. 5, in this manner making it possible to mechanically move the slide F either backward or forward, parallel to the carriers.

[fol. 256] In other words that E is the regular common shaft of the machine and on that is a cam which moves a pawl lever to which is fastened two pawls that engage either to the right or left of the ratchet which have opposed teeth somewhat like the Sowter patent, only in this case he goes a little further than Sowter as he actually shows which of those chains or pawls engage, and in this, as differing from Sowter here, we are concerned with the supplemental carriers, not just body carriers.

In order that the carriers 3 and 4 can produce the other part of the design it can be stopped varyingly to match the carrying motion of the carriers 1 and 2, and so form a suture, they are provided with abutments as shown in Figs. 3 and 3a, which contact with adjustable stop screws carried by stop bracket G fastened to the slide F, in a

movement from left to right. There are also provided at the left hand of the machine, similar abutments screws and stops like this G^1 fastened to the slide F^1 as shown in Fig. 3a.

In order that the carrier 5 which lays yarn to produce the center portion of the fabric, between the patterns, can be varyingly stopped—I am speaking of the green fabric now—in accordance with design requirements, its bar is also fitted with abutments, the right hand end of which contacts with an adjustable screw carried in the right hand stop bracket G, thereby stopping the carrier 5 at the end of its traverse from right to left.

It is interesting to note a statement commencing with line 36, page 5 of this patent:

"It will be understood that the progress of the stripe may be continued to any desired length through the work. [fol. 257] If, however, it is desired to stop the striping * * * the thread carrier bars not required for future use, are to be locked out in the usual way."

To this end, there are provided means for readily disconnecting the carriers from their driving means, so that any of them may be idled at the end of the needle sections. That means is merely that the slide against which they abut is taken out of the way. In other words, it in no ways affects the other operations or mechanism parts of the machine. It is a very common way to pull a carrier stop out of the way.

Q. So that the stops which control the traverse of the carrier rod are made removable so that the carrier can go right through to the end of the machine?

A. Yes.

The Witness: If I may be permitted to say so, it is interesting to note that Lamb and Noon's inventions were made at about within two years or so of the same time of this Woodward invention with the right and left threaded spindle and it is interesting to note that the end of the Woodward Spindle which was not fitted with ratchets is exactly the same design as shown on the Lamb and Noon patent, and both being Englishmen and both working in the same plant before, it occurred to me to be the same type of machine.

Mr. Darby: I offer in evidence the Claringburn British patent No. 4,967, of 1890.

(Marked Defendant's Exhibit Y.)

Mr. Darby: I also offer in evidence sheets 1 and 2 of [fol. 258] the Figs. 3, 3a, 4 and 5 of the Lamb and Noon patent last above referred to.

(Marked Defendant's Exhibit Z.)

The Witness: This invention, as stated at line 5, page 3, relates "to straight bar knitting machines known as Cotton's patent."

It is specifically drawn to shifting a multiplicity of groups of loop-lifting points to produce widened and narrowed fabric in which narrowings and widenings occur at the end and inside the edges of the fabric, said fabric probably being used for undervest. The fabric was narrowed and widened and therefore required that the loop-lifting points be shiftable toward and away from each other.

This mode of moving the points differs from the conventional in that the points here have to move not only toward each other mechanically but have to move away from each other at the times that the fabric is to be widened.

It is stated, commencing with line 24, page 3, that

"the needles, thread carriers, and the ordinary parts of the machine are the same as usual * * * I have therefore not shown or described any of these parts except where necessary to explain my invention."

As the loop-lifting points are constructed to move forward and away from each other, therefore producing widened and narrowed fabric, it follows that the thread carriers must also be controlled to produce wider or nar- [fol. 259] rower fabric in order to lay the yarn to varying widths of fabric as determined by the points.

Q. Can I shorten it by asking you this question: Does this patent illustrate another instance of the prior art where narrowing, that is, where controlling of the narrowing points, as well as narrowing the traverse of the thread carrier is effected automatically by the means of threaded spindles in either direction?

A. Yes. It is very similar to the Sowter patent that was previously described.

Mr. Darby: All right. I think that will be sufficient. I offer in evidence copy of Claringburn British Patent No. 7,068 of 1891.

(Marked Defendant's Exhibit A-1.)

The Witness: This is just another prior art patent very similar to the Claringburn of the type of two-way, threaded two-way racking stop spindles, more clearly showing, however, that carriers are to be stopped instead of merely stating, as in the other Claringburn patent, that carriers are used and are stopped by the spindles.

An interesting feature to us is that the stop *n* on the nut *o* is used to stop carriers approaching from either direction, that is, against both sides of the stop, the collar stop in the carrier *m* against the outer side of the stop *n* when the carrier *m* is moving from left to right, from the selvage inwardly, while the stops *v*, *u* or *n* stop the *t* carrier in its movement from right to left.

Another new feature not found in prior art is the fact that the fabric that is to be produced here is shaped, that is, the intermediate portion is shaped independent of [fol. 260] the normal selvage as shown in Fig. 2. In other words, there were separate pieces of fabric to be formed that were shaped that formed the breast portions shown in Fig. 3; that is for underwear and ladies vests. Of course when fabric is shaped as shown in Fig. 2 from the lines *g* h^1 *s* and *g h s*, that is the right fashioning of the center portion it is to be understood that if the points stop the carriers have to stop.

Mr. Darby: I offer in evidence copy of the German Lieberknecht Patent No. 117,173, and ask you to take that up next.

(Marked Defendant's Exhibit B-1.)

Q. And I will ask you to consider that patent particularly with reference to the subject of interchangeability of narrowing control and thread-carrier control?

A. This invention relates to stops for carrier and narrowing rods for flat machines. As clearly shown in Fig. 2, the stop means consist of a pair of nuts K fitted to a threaded spindle L, with ratchets fastened thereto. The nuts K are provided with carrier stops *f* and f^1, against which the abutments *i* and i^1 of the carrier rods are stopped in their

traverse, the traverse of any one carrier in any one direction being against one of the nuts and against the other nut in the other direction of traverse.

It is not contended in this patent that it is new to so construct spindles and nuts. The object of the invention is to position stop means in a multiple section machine, other than at the ends, in order to lessen the expansion and con- [fol. 261] traction inherent in long carrier bars. The same type of mechanism is also shown for positioning the narrowing rods for the narrowing points, this merely being a duplicate mechanism of the device used for stopping the carrier rods.

There are many machines, particularly foreign machines which are constructed with this feature; that is the mounting of the spindle and nuts somewhere else than at the ends. This is usually the middle of the machine, whereas the ordinary American machine is built with the end stop spindles at each end.

Mr. Darby: I offer in evidence the British patent to Cotton No. 208,362. I may tell the Court that this British patent to Cotton was cited by the Patent Office against Schletter as a complete anticipation. The file wrapper shows that that action was acquiesced in by the patentee and he purported to overcome the effect of the British patent by then injecting into his application for the new patent in suit for the first time a reference to the old abandoned application wherewith the Patent Office withdrew the citation.

(Marked Defendant's Exhibit C-1.)

Mr. Darby: Will your Honor temporarily ignore these typewritten sheets in there. It was prepared for the Court's use, but I have not fastened the drawings.

Mr. Howson: I don't want to argue the case at this point, but there was one remark made with reference to the action of the Patent Office where he said Schletter acquiesced in [fol. 262] something or other. I just want to make a note that we do not agree with that.

Mr. Darby: There was no traverse of the rejection, is what I meant.

The Witness: This invention relates to improvements in connection with rotary or straight bar knitting machines and is particularly adapted to the type known as Cotton patents, page 2, line 35.

It has particular reference, as stated at page 2, commencing with line 43, to such arrangements as are applied to

"'Cotton's patent' or similar knitting machines for 'splicing' or knitting in an extra thread to strengthen certain parts of hosiery or underwear" • • • "it is more particularly designed for effecting improvements when" • • • "'high splicing' in hose or the like is being made, and where the top of the splicing is graduated so as to rise to a point" • • • "generally known as 'graduated splicing.'"

It is stated, commencing with line 70, page 2:

"The mechanism now to be described consists of improved variable stops and associated parts automatically controlling the various length of traverse of the splicing carriers as desired."

The mechanism is clearly shown in the one sheet of drawings and takes the form of a right and left threaded spindle [fol. 263] lettered D^4. Each of these threaded portions are fitted with a nut D^2 and D^3, respectively, a pin disc racking arrangement, D^7, being provided for turning the spindle, a pawl engaging with the disc pin D^8 as shown in Fig. 3. This motion effected the turning of the spindles taking place on the upward stroke of a bar D^{10}.

It is interesting to note that it is stated in line 83, page 2, that the

"two nuts or boxes approach or recede from one another,"

whereas his spindle is only racked automatically in one direction, so that only one ratchet and pawl are provided.

I don't know what the inventor by making that statement meant as it is not shown. He probably meant it is racked out by hand, or he quite probably meant it could not be racked in two directions.

The inventor states, commencing line 41, page 3, that the device can be mounted at "any convenient part of the framing of the machine." I think that about covers that.

Mr. Darby: I now offer in evidence a photographic copy of a book entitled "Knitting Mathematics and Mechanisms," published by J. W. Hemmings & Capey, Printers, Charles Street, in 1923, which is an article "Prepared for

the Textile Trades Advisory Committee of the City of Leicester Municipal Technical and Art Schools, by John Chamberlain," and particularly pages 125, 126 and 127 of that article.

(Marked Defendant's Exhibit D-1.)

[fol. 264] Mr. Darby: I call your Honor's attention to the figure on the second page as to the reversely-threaded spindle and the screws.

The Court: There is a new name for them in there, "drunken worms."

Mr. Darby: The article we rely on is the screws and screw threads at the bottom of the page. Without taking the time to read it to the Court now, I call attention to the last paragraph of this article:

"Another use of the square thread is for gradually reducing or increasing the traverse of yarn guides. Fig. 4, Diagram 8 shows a spindle A cut with right-hand thread B and left-hand thread C. Rotation of this spindle will cause screw-boxes or specially constructed nuts to move in opposite directions for the purpose previously mentioned."

Q. Mr. Miller, what would that statement contained in this publication mean to one skilled in the art?

Mr. Howson: I object to that, if the Court please. It is asking the witness to speculate on something and interpret something which does not require interpretation.

Mr. Darby: I am asking for an expert opinion.

Mr. Howson: It is a hypothetical question anyway; referring to one skilled in the art.

Mr. Darby: He is one skilled in the art. What does it mean to him.

[fol. 265] Mr. Howson: He is produced here as a professor. He may or may not be well skilled, and I don't know why he should speculate on what one skilled in the art would say.

The Court: He may answer subject to the objection. I doubt that it is proper.

Q. (Read.)

A. Why, it would mean that having right and left-threaded spindles and racking them back and forth they control yarn carriers, and if I may, I would like to say that spindle shown in Fig. 4 is exactly the type of spindle shown

by Woodward and here, of course, it states that it can be moved backward and forward as he does in his patent.

Mr. Darby: At this time, if the Court please, I would like to interrupt the witness long enough to offer in evidence evidence pertaining to prior use which is admissible under the stipulation, and whenever the Court will desire I want to ask this witness something about two of the instances of prior art relied upon. If the Court would rather have me recall him for that purpose or interrupt his examination to offer it now, I will abide by the Court's wishes.

The Court: It is wholly immaterial to me. Have you any wish, Mr. Howson?

Mr. Howson: No.

The Court: Follow your own inclination.

Mr. Darby: Then I will come back to that.

[fol. 266] By Mr. Darby:

Q. Have you prepared from the instances of the prior drawing showing various types of spindles employed, noting the purposes for which they are employed?

A. I have.

I will describe what I have illustrated and the purpose. I think we better look at Sheet 2 first. I see it is not numbered——

The Court: It is entitled "Spindles of Prior Art." It does not bear any number.

The Witness: Yes, and it is the sheet that has the whole sheet filled with spindles. The upper one, the top one—we will call this sheet 2 that we are now on and the other one 3. I am now going to refer to sheet 2.

Fig. 1 of sheet 2 shows the ordinary end spindles of the regular Cotton carrier end stops. These spindles are threaded one way, there being one of them mounted at one end of the machine and one at the other. The threads at one end usually being opposite to the threads at the other end. Each spindle is fitted as shown on the sketch with a single ratchet. Such spindles as are shown here for instance are common——

The Court: Haven't you told me all about these spindles as you talked about these various patents from which they are taken? Is it necessary——

Mr. Darby: No, sir.

The Court: Each of these purports to be an illustration of the spindle that is taken from one specific fact which the [fol. 267] witness has at some length explained. Is there any necessity of covering that ground again?

Mr. Darby: I did not intend to have him do that.

By Mr. Darby:

Q. Are they shown in the approximate position of the bed of the machine in this drawing?

A. Yes.

Mr. Darby: I think that is all the explanation we need in connection with this first sheet.

Q. Now, about the second sheet.

A. I would like to say this about it, though, if I may.

The Court: Go ahead.

The Witness: It will be noted that some of these spindles are threaded one way and some threaded two ways, and some fitted with one ratchet and some with two or more ratchets.

The Court: You have told me all that once. It is perfectly obvious which way the screws turn in each one of these.

Mr. Darby: All right.

Q. Now what have you to say as to the other sheet?

A. Sheet No. 3 shows the carriers and bars as ordinarily used on Cotton full-fashioned machines to show how they might well be used with the right and left threaded spindle as shown in the Woodward patent.

[fol. 268] Mr. Darby: I offer these two sheets in evidence.

(Sheet No. 2 marked Defendant's Exhibit E-1.)

(Sheet No. 3 marked Defendant's Exhibit F-1.)

Q. Mr. Miller, going to the subject of sutures: In the case we have already referred to, the herringbone, 2-needle lap, 4-needle lap sutures, what type of suture is the apparatus shown in the patent in suit capable of producing?

A. The suture in which the yarns are floated, as it is mentioned in a number of places in the patent; that the yarns are to be floated at the suture.

Q. Is that what you refer to as the herringbone suture?

A. The herringbone suture has floated yarn at the sutures.

Q. Is the apparatus as shown by the patent capable of producing any other type of suture; that is the apparatus as shown with the undercut stop?

A. Yes, it is possible. You mean as far as the stops are concerned? Not as to the fact that the machine does not show enough operating parts?

Q. Just so far as the stops are concerned.

A. The stops could be used to produce what I call, for want of a name, because it is a new type of suture—at least one that I am not familiar with—that is a herringbone 2-needle lap suture. That is, it has the floats of a herringbone and then in order that the holes that otherwise would be formed are covered, the 2-needle lap is given in addition to the herringbone shift.

Q. In producing the herringbone suture, type of suture, either alone or in conjunction with lap, what type of sinkers [fol. 269] does the machine require?

A. In the formation of any type of herringbone it is necessary to have long and short nose sinkers. I would like to say this about long and short nose sinkers: years ago all full-fashioned machines had two types of sinkers, long and short noses. The dividers had long noses and the jack sinkers had short noses, so that the machine as constructed in a normal way was capable of producing herringbone splits. As the machines, however, became finer, and particularly knitted fabrics of silk were in demand, the long and short nose sinkers could not produce the fine even wale fabric desired, so that for that one reason—either that with other reasons—the sinkers were all made of one length, except at such places where a herringbone split was to be formed. The herringbone split at that time was the common split juncture in use. If, now, you make a herringbone split junction that is on the diagonal to the vertical wales, in other words, with the joint of the loops taking place at different wales, depending upon the shift of the design, it is necessary to use short and long nose sinkers around those needles, or the number of needles that produce the shog effect in the pattern. In other words, if the shift in the pattern is 40 needles around, it means around 40 needles you have to use long and short nose

sinkers if you are going to produce a floated type of split juncture.

The reason why in Schletter it is quite obvious that is what he wanted to produce is that the operation of the undercut stops he shows could not be used for any other purpose except making herringbones. It is quite obvious [fol. 270] to me that the split block that is ordinarily used on full-fashioned machines, that is, just a slot that has a little undercut portion that moves up and down; it does not move parallel to the machine at all; it is merely up and down, so that when the carrier strikes it it can have a delayed motion necessary to make the herringbone,—Schletter took the split block and mounted it on nuts so it can be traversed parallel to the other traversing parts of the machine and it is his invention as stated in there to float the yarn, which, at his time, was the common way of making a split. After making the split, however, it became obvious that you could not make a herringbone split on the diagonal without making holes, so that the way out appeared to be to make an additional lap which I have called by the term "2-needle lap herringbone." The difficulty with that, as I pointed out, was that you require these long and short nose sinkers, and a machine having, in my estimation, short and long nose sinkers over any area of the needles could not be used commercially today, and in fact none of them have been sold for many years. A manufacturer that would try to sell a machine for long and short nose sinkers over any number of needles could not sell them because the work would be inferior as to what is demanded in the modern machine.

By Mr. Darby:

Q. Let me interrupt one minute. If you were going to enable the producing of split fabric at an angle anywhere between the selvage edges how far across the machine [fol. 271] would you have to have alternating long and short nose sinkers?

A. Just as many of them as taken in by the design.

Q. In other words, you would have to have them clear across the machine if you wanted to produce a design in the selvage?

A. Yes, but actually we do not go across. We go about 40 or 50 needles, but that bundle of sinkers would have to

have long and short nose sinkers. To make a practical split juncture, using the undercut, movable stop shown by Schletter, you are forced *to* to make a pattern that is not practical—not with the fabric itself, but the machine you would have to use to make that pattern would not in any other sense be practical for the reason you would have to use long and short nose sinkers and in that kind of machine you could not use them.

Now, the way you could make a lap juncture using part of the Schletter feature is to entirely eliminate the undercut stops and the cams to move them and everything Schletter has applied in this patent and entirely eliminate that and merely use the solid stop, not undercut, such as for instance we have shown in a number of these prior art patents. For instance a stop as shown in Woodward, which is a solid stop, and the way you make a lap then is to lap over further, say four needles. Two needles won't do it, because that will leave a hole at the shift. In one of these large drawings I could show if you wished a 2-needle lap, and when you start to make a diagonal shift at the time you shift you would make a hole, so in order to close the hole, you have to make a 4-needle shift.

I have prepared drawings illustrating these different [fol. 272] types of sutures that have been described by me. I produce them and will describe the actual fabrication.

Fig. 1 of these drawings shows the vertical herringbone split suture juncture, such as was in common use at the time of the Schletter pattent. This fabric was considered a very desirable form, by reason of the fact that at the suture or juncture of the loops at C-D of Fig. 1, no appreciable thickening resulted, it being understood that the darker yarn area, if a split was to be formed, for wear purposes, was made of heavier yarn than the light portion of the fabric, but with the herringbone type of suture, the C-D area was not appreciably thickened over the dark area.

I have had fabrics made showing this type of suture. The mechanism usually used to stop the carriers to produce the variable sutures as shown in the drawing Fig. 1 and in the samples submitted, takes the form of the mechanism shown in Fig. 2. As this has been described before, I will not describe it again.

Q. To make it clear, it has been described in connection with page 54 of Plaintiff's Exhibit 6, which is the Textile

book. At this time I will interrupt you just long enough to offer into evidence the fabric referred to by the witness.

(Marked Defendant's Exhibit G-1.)

The Witness: To make this kind of a juncture, it is necessary to use at the place of the junction special short nosed sinkers as shown in Fig. 3 of these drawings, which shows at *g* the regular sinker. At *g'* the special split short-
[fol. 273] nosed sinker, the other two figures H^1 and H represent dividers that are used to sink the yarn between all the needles.

As has been previously explained, the yarn as it is first kinked by the sinkers is formed around every pair of sinkers. This is clearly shown in Fig. 4.

The black yarn a^1 being shown as kinked around the pair of needles between the right hand sinkers *g* and g^1. The diagrammatic view of the end of the carrier tube shows at *f* with the black yarn a^1 stretched between the last sinker g^1 which, as previously noted, and shown in Fig. 3, is of the short-nosed type.

The sinker adjoining this to the right it will be noted in Fig. 4 is of the regular long-nosed type. With the yarn kinked as shown in Fig. 4, the next movement in knitting, kinks the yarn around every needle as shown in Fig. 5. The black yarn now being kinked around every needle, by reason of the dividers, one of which is shown at *h* as having come in. It is understood that all these dividers come in *en masse*, that is, as a unit. Upon continued knitting the elements assume the position as shown in Fig. 6, and I wish to draw attention to the fact that when the elements reach the position shown in Fig. 6, the carrier *f* has remained at rest over divider h^1, which is the divider that is between the two needles C-D of Fig. 5, that are to form the suture, so that in Fig. 6, as the needles move outward and so take the yarns $a^{1\,1}$ off the ends of the sinker nose, the carrier *f* has remained at rest over the divider between the suture needle C-D. It is at this time that the delayed action of the carrier must take place in order that the
[fol. 274] floats *e*, Fig. 1, can be formed. At this time, therefore, and before the needles move toward the sinkers again, the carrier *f* is shifted into stop dash position as shown in Fig. 6.

That was accomplished by the undercut in the stops, and must take place at very closely to the time shown in Fig. 6, for as the needles go into their next position, moving towards the sinkers and with the kinks of the yarn under the sinkers in order to finish the yarn into loops shown in Fig. 7, that is the last course of loops shown in the black yarn in Fig. 7 are the kinks of yarn shown as $a^{1\,1}$ in Fig. 6. As these needles move in the position shown in Fig. 7, it is necessary that the bar of yarn marked e^1 in this figure, and under the sinker g^1 and over the divider and sinker adjoining the g^1 sinker to the left, as shown in Fig. 7; in other words the yarn e^1 shown in this figure must be in position as shown in this drawing in order that upon subsequent movement upwardly of the needle C-D the yarn e^1 will be floated to the back of these needles. So that it eventually assumes the position shown by the e float of yarn in the lower portion of this figure. If, therefore, the sinker g^1, Fig. 6, were not shorter than the sinkers adjoining it on each side, the yarn instead of assuming the position shown in Fig. 6 and so properly later forming the float e, might well go to the wrong side of the nose of the sinker g^1 and so lay on top of the g^1 sinker instead of under it in Fig. 7. Upon subsequent movement of the parts, the needles C-D having come up, the yarn e^1 is wrapped around these needles as shown in Fig. 8, thereby having commenced assuming the position shown in e of the same figure.

[fol. 275] The carrier f during the movement of the elements between 7 and 8 has been at rest over the h divider shown in Fig. 8. That is, the carrier has been resting against the undercut portion of the carrier stop, upon carrier reversal to the right after Fig. 8, thereby bringing the left hand carrier not shown in the previous figures into the position shown in Fig. 9, that is again resting this carrier over the same divider with the a^1 for the f^1 carrier rested prior to its shifting in its delayed action, that is the carrier f of the b^1 yarn in Fig. 9 rests over the same divider h^1 that the f carrier for the a^1 yarn rested over in Fig. 5.

The jack sinkers having all their kinks of yarn from the needles as shown in Fig. 9, the a^1 yarn having formed the float around the suture C-D in its movement from left to right with the yarn b^1, that is the thin portion of the fabric having formed this kink on the last sinker on the

right of the b needle forming the suture as shown in Fig. 9, showing all the parts in this Fig. 9 is exactly the same insofar as the position of the elements is concerned as the elements in Fig. 5 with the exception that it is the b^1 carrier that is in position over the divider between the suture needles. The movements of the elements from this point on, that is from Fig. 9, will be the same, only on the opposite end as the movements just described. In other words, it is absolutely essential that the short-nosed sinker be used between any pair of suture needles, as long as there are only a pair of such suture needles, it is apparently a simple matter to use two special short-nosed jack sinkers on each side of the suture needles; but assuming it becomes necessary [fol. 276] or desirable to form sutures that are inclined to the wales, that is, if the same suture needles are not used throughout the formation of the suture, so it becomes necessary to use numbers of these special short nosed sinkers.

The objection to using these short-nosed sinkers arises from the fact that their use in modern machines can not be considered by reason of the fact that due to their use imperfect fabrics are produced in a number of places. One place in particular, and one very easy to see, is the appearance of fine-gauged fabric in long and short-nosed sinkers. I have such samples here. I am referring to the fabric that is in evidence as Exhibit G-1.

I will point out the defect in that exhibit. I call attention to the alternate striped effect produced in the black portion of the fabric in which every other wale appears to have a different stitch than the alternate wale.

A further objection to the use of short and long-nosed sinkers arises from the fact that when they are used at a selvage, as would be necessary if designs are to be produced for herringbone sutures, it is practically impossible in commercial practice to form what are known as clearn selvages, that is, selvages in which the successive interknitting of the yarns, as for instance on the right hand edge of the fabric shown in Fig. 1, will result if certain of these reverse yarns are pulled out or certain of the loops in the last wale, and thereby the stitch—that is, the wale itself will not be properly formed, so that upon subsequent seaming of the stocking, considerable uncertainty exists as to whether the seam can be made fine; that is, whether it can [fol. 277] be sewed in on one or must be sewed in on more

wales. In other words, there is no certainty as to the exact width of the goods.

Mr. Darby: I offer in evidence the drawings produced by the witness, Figs. 1 to 9, inclusive.

(Marked Defendant's Exhibit H-1.)

The Witness: In the old machines, it is true that short and long-nosed sinkers were used, but in these machines the grade and type and weight of fabric was entirely different than in the commercial machines today, where extreme sheerness and a fine gauge fabric are demanded.

Furthermore, the industry is so far over-machined and can produce so many more stockings than the public can buy, that competition has reached the point and is so keen that the minutest imperfection in hosiery prevents its profitable sale, such as streaks in hosiery or bad selvages might very seriously interfere with the sales of those goods. In any case, machines having only short-nosed sinkers could not be sold today, that is, if the long and short-nosed sinkers were in any number. One or two do not distort the fabric enough to be really objectionable. So if after the long and short-nosed sinkers as a whole were removed from the machine it was still desired to produce herringbone for particular sutures, the machine builders sold machines with one length sinker except at the place where the suture was to be formed.

I have prepared drawings showing the next type of suture, which I am prepared to discuss.

[fol. 278] That type of suture is the herringbone suture just described, but in a diagonal form; that is, it shows an attempt at using the herringbone suture and have a juncture inclined to the wales and the courses.

Commencing with course 1, it will be seen that there are three views of fabric and yarn. The one yarn shows the fabric loops after they are formed; the next one to the right it shows the yarns as they are laid against the needles while the next yarn, the figure to the right of that shows the yarn as it is laid into the sinkers.

The reason why the yarn laid in the sinkers looks entirely different from the yarn laid around the needles is by reason of the fact that the carrier that lays the yarn must pass the last active needle by an index and a half so that the

traverse of the yarn in the carrier is an index and a half longer than the last needle that engages with the yarn.

In the carrier movement diagram which is the one that lays the yarn to the sinkers just referred to, it would appear as though laps were being formed at all of the courses; that is, that there was a place—there is always a place against the needles where there was yarn, but bear in mind the fact that there is an index and a half excess movement in the carriers. If now we referring to the yarn laying diagram we will see that in the fifth course that there is a place where the yarn—where needles 4 and 5—needle numbers being at the bottom—do not receive the yarn which results in the hole shown in the fabric diagram in that course. Such a hole, due to the preceding course that is the fourth course of loops, those loops will drop-stitch and [fol. 279] make what is known in the trade as a runner and will continue down the stocking.

Q. Pardon my interruption. Have you available fabrics manufactured in accordance with that method, illustrating in the fabric the drop-stitch referred to?

A. Yes, I have fabrics prepared which show that the making of a small hole results in a drop-stitching of the loops previously formed as well as those following. The upper loop above the hole will also drop-stitch.

Mr. Darby: I offer the fabrics produced by the witness in evidence.

(Marked Defendant's Exhibit I-1.)

Q. As I understand you, the herringbone type of suture at these diagonals to the wales in the manner contemplated by the apparatus shown and described in the patent in suit, produces this type of suture, is that correct?

A. Yes. And if it produces this type of suture or product, the patent is as illustrated in Defendant's Exhibit I-1?

Mr. Darby: I offer in evidence the drawing used by the witness.

(Marked Defendant's Exhibit J-1.)

Q. I next call your attention to drawing illustrating the two needle herringbone lap; is that the type of suture which you have referred to as its name having been coined by yourself?

A. Yes, this type of fabric I never saw before until I got into this case. I will describe that.

In this fabric the floats common in herringbone fabric remain. With the addition of two wales adjoining such floats in which a reinforcement has been formed. That is, the [fol. 280] suture is formed from four needles, two of which are reinforced and two of which have floated yarns so that it is a combination suture, not having to my knowledge ever having been produced before, although I would like to say that two needle lap sutures had been made before, as, of course, had the two needle herringbone, so you combine the two sutures. I have made fabrics illustrating this type of lap.

Q. Will you point out the loop structures incident to the use of the herringbone in the bias suture. Are they plainly visible?

A. Yes. You can see the loose floats of yarn and on the outside you can see it takes four needles to make the juncture.

Mr. Darby: I offer these fabrics in evidence as illustrating the 2-needle herringbone lap.

(Marked Defendant's Exhibit K-1.)

Q. Will you state, Mr. Miller, whether or not stockings employing this type of suture, namely the 2-needle herringbone lap, are practical commercially?

A. No. As mentioned before when referring to herringbones, this style of herringbone—part of this suture is still composed of the herringbone float which would necessitate the use of short and long nose sinkers, which, as pointed out, is not practical in modern machines. Whether the fabric could be commercialized, I do not know, but I do know that commercially it could not be produced.

Mr. Darby: I offer in evidence the small drawing of the 2-needle lap herringbone structure.

(Marked Defendant's Exhibit L-1.)

[fol. 281] The Witness: I am familiar with the attachments manufactured and sold by the plaintiff, assertedly under the Schletter patent in suit. None of the attachments made and sold by the plaintiff commercially make any of the sutures that I have thus far described. I am familiar with the defendant's machine. The defendant's machine or at-

tachment does not make any of the sutures that I have thus far described. I call attention next to the 4-needle lap split and will briefly describe that and point out the difference between it and the other sutures that I have heretofore described.

With this type of suture it is not necessary to float the yarn. The yarn moves from course to course without floating across any needles. It will be noticed that this yarn is closely wrapped around the edge loop wherever the end of the suture may be. The attachment shown and described in the Schletter patent is not able to make this type of suture. The attachments sold commercially by the plaintiff could make this type of suture. I heard the testimony of several hosiery manufacturers yesterday to the effect that they acquired attachments from the plaintiff beginning in 1927, employing 4-needle lap. This is the type of suture which is known generally in the trade as the 4-needle lap. The defendant's structure can make this type of suture. I produce samples of the fabrics manufactured employing this type of suture. That type of suture overcomes the disadvantages of the herringbone type.

Mr. Darby: I offer in evidence the drawing of the 4-needle lap produced by the witness.

(Marked Defendant's Exhibit M-1.)

[fol. 282] Mr. Darby: I also offer in evidence the fabric produced by the witness as illustrative of the 4-needle lap suture.

(Marked Defendant's Exhibit N-1.)

Q. In Defendant's Exhibit C for identification there is contained the statement in the advertisement of the Plaintiff's Company of a device "which eliminates the 4-needle overlap which causes a bulky line where sole and instep are joined." Is the 4-needle lap split type of suture regarded in the art as a disadvantage in any respect?

Mr. Howson: Objected to what is regarded in the art. He can state his own knowledge.

Q. All right. State your own knowledge. Do you regard the 4-needle lap suture as objectionable in the production of the present modern type of stockings?

A. Why, yes. The objection to it, is that it makes a bulky seam, and further, what is not desirable, is the fact that not

only is the seam bulky, but due to being reinforced for 4 needles a more undesirable juncture is formed because you would have to plate on four needles to make a nice looking juncture. It is so wide that knitting with two threads it would look very ragged if it was not plated, even though in the same color, unless you use this so tight that it would be observable. If that was a narrower lap plate it would not be so necessary. 2-needle lap is employed in the art principally today although there may be attachments that still use 4 laps that have not been changed over. But most of them, as far [fol. 283] as I know, have changed over to 2-needle laps.

Q. Will you please refer to this drawing for the 2-needle lap and point out its differentiation from the other type of laps you have already discussed?

A. This shows a 2-needle lap diagonal suture. There is no floating of the threads. In fact the position of the thread from course to course is very similar to the 4-needle lap, the only difference being that here in this case there are only two needles that have the reinforced laps, whereas in the other case there were 4 needles. I produce fabrics illustrating the 2-needle type of lap. I have had these fabrics knitted with the 2-needle laps and it will readily be seen that the mottled effect of the plating is greatly reduced as it is only extended over 2 needles instead of 4, as is the bulkiness likewise being reduced to half of what it was in the 4-needle lap.

Mr. Darby: I offer in evidence the drawing of the 2-needle lap suture.

(Marked Defendant's Exhibit O-1.)

Mr. Darby: I offer in evidence the fabrics produced by the witness.

(Marked Defendant's Exhibit P-1.)

The Witness: The attachment shown and described in the Schletter patent cannot produce the 2-needle lap structure of this exhibit. The defendant's attachment produces the 2-needle lap structure. The plaintiff's attachment produces the 2-needle lap structure. The plaintiff's attachment as illustrated in Plaintiff's Exhibit 33 is not capable of produc- [fol. 284] ing the 2-needle lap, because there are no undercut stops used and no means are shown to move them. In producing the 2-needle lap it is necessary to utilize undercut stops.

Q. Do the undercut stops in producing that type of laps operate the same way for the same purpose that the undercut stops of the Schletter patent in suit are employed?

A. They neither work the same way nor are there for the same purpose—neither.

I am shown a copy of Bitzer patent No. 1,938,207, granted to the plaintiff as assignee, December 5, 1933, on the application filed May 28, 1931. This patent shows and describes a form of mechanism that will produce a 2-needle lap suture. That is what the patent is directed to.

Mr. Darby: I will offer this in evidence which has been previously marked as Defendant's Exhibit E for identification.

(Defendant's Exhibit E for identification marked in evidence.)

The Witness: I am shown Plaintiff's Exhibit 17. Plaintiff's expert, Mr. Meyer, stated that the suture in his exhibit was a 4-needle lap suture. It is not a 4-needle lap suture. It is a 2-needle lap herringbone suture, because there are floats of yarn on the inside of the fabric that can only be produced by floating thread as is necessary in herringbone.

Q. I hand you what I believe to be all of the stockings and socks that have been offered in evidence by the plaintiff, and ask you if there is any one or more of them that could have been produced, in so far as its suture seam is concerned by [fol. 285] the attachment as shown and described in the Schletter patent in suit. Will you take them up one at the time and identify it by Exhibit number and say it could or could not, with your reason in each instance.

A. Plaintiff's Exhibit 23 is what I would call a window clock. That is, it is a design in which the fabric——

The Court: That is not the question as put to you.

Q. (Read.)

A. Exhibit 23 could not be produced, because there are no loops of yarn at the sutures. In other words, because it is not a herringbone split type of suture. Exhibit 22 could not have been produced for the reason that it is not a split fabric. It is a spliced clock sample.

Exhibit 5 could not have been produced because there are no floats at the split suture.

Exhibit 38 could not have been produced as there are no floats at the suture.

Exhibit 30 could not have been produced as there are no floats at the suture.

Exhibit G for identification could not have been produced as there are no floats on the suture.

Exhibit 4 could not have been produced as there are no floats at the suture.

Exhibit 27 could not have been produced as there are no floats at the suture.

Mr. Darby: May I at this time offer in evidence Defendant's Exhibit G for identification, which is one of the stockings produced by plaintiff's witness.

(Marked Exhibit G in evidence.)

[fol. 286] A. (Continued.) Exhibit No. 21 could not have been produced as it is not a split fabric.

Mr. Darby: First I offer in evidence the Schletter patent No. 1,752,206 which has been heretofore identified as Defendant's Exhibit F for identification.

(Defendant's Exhibit F for identification marked in evidence.)

Q. I call your attention to this patent which purports to be in part a continuation of the application for the patent in suit, and ask you to state very briefly in what particular respect does it differ from the patent in suit.

A. It uses one pattern chain instead of two and it uses a type of stop that is not undercut and which is not recurrringly operated.

Q. To what type of fabric is the patent directed, namely, is it the split fabric or spliced fabric?

A. It states that it can be used "for making clocks or split seam work," and so forth.

Q. I call your attention to Schletter patent No. 1,531,349, which is in evidence as Plaintiff's Exhibit 39, and particularly I call your attention to the designs and clocks shown in that patent. Will you state whether any of those designs could be made by the attachment shown in the Schletter patent in suit, and if so, which?

A. This patent appears to be drawn to the formation of a spliced clock and so could not be produced by the Schletter patent. If they were spliced clocks having reference

merely to the design, none of them could have been produced by the Schletter patent of the patent in suit. The designs shown in Figs 1, 2 and 3 could not have been produced be- [fol. 287] cause it is impossible with the Schletter attachment to change the outline of the pattern varyingly. That is, if, as is customary, the racking is over 2 needles in one part of the design it cannot be more than 2 needles or less than 2 needles in another part. The Figs. 1 and 2 further show the simultaneous production of high splices with clocks and I find nothing in Schletter to show how the mechanism shown in the Schletter patent is to be used to attain this end.

Further, more designs of the outline shown in all these figures would, were floating thread sutures such as described in the Schletter patent, hardly carry out the outline on account of the many loose threads and deformed stitches resulting when demands are made to make narrow designs in split fabrics.

Mr. Darby: I offer in evidence a certified copy of the file wrapper of the patent application of Schletter, filed March 12, 1921, Serial No. 451,785, "Improvement in certain stockings" appearing on page 23 et seq. of the Hofman record on appeal which has heretofore been marked for identification Defendant's Exhibit A *for identification.*

(Defendant's Exhibit A for identification marked in evidence.)

Q. I call your attention to the type of suture in the fabric illustrated in the application corresponding with the original Schletter application and ask you if you will first state what type of suture it is and state whether or not it could be made with the attachment as shown in the Schletter [fol. 288] patent in suit?

A. Referring to Fig. 1, I would say that the drawing does not represent any suture with which I am familiar. It has, however, one distinguishing feature with which I am familiar, and that is the floating feature which, even though the drawing is very poorly executed, shows clearly there is a float there. That float can only mean one thing, and that is it is intended to be a herringbone suture. I must say this one thing further, continuing that answer: It is also improperly shown, because from the fact that the enlarged fabric from the herringbone diagonal suture pre-

viously shown clearly indicates that a hole must be formed and such hole is not shown in this fabric.

In the absence of the hole in this fabric the fabric illustrated in this application could not be made by the Schletter attachment. In other words, a fabric without a hole could not be made by the Schletter attachment. Herringbone diagonals will have holes.

Q. Now I call your attention to the drawings of the patent in suit with particular reference to any additional equipment or, at least the rest of the knitting machine which is not illustrated. If you supplied the rest of the knitting machine to the attachment illustrated and shown and described in the Schletter patent, would the attachment shown there operate?

A. No.

There is no connection whatever between the attachment shown in the drawing and the rest of the knitting machine in so far as the operability of that attachment is concerned.

Mr. Darby: If I may excuse the witness for a minute, if [fol. 289] the Court please, I would like to put in evidence the prior uses and ask the witness one simple question in connection therewith.

The Court: If there is no objection it is all right.

(Witness withdrawn.)

Mr. Darby: I, of course, have no intention in the world of reading these depositions, but if the Court will permit I will very briefly synopsize them. If the plaintiffs take the same position that they took in the Hofman case there is no dispute as to the dates.

I offer in evidence under stipulation heretofore read into the record, the deposition of Elmer R. Roth, Paul Guenther, Frank Heyde, Frank Nobis and Max Gruener, with reference to so-called Gotham prior use.

Mr. Roth testified that he had been employed continually by a succession of mills, starting with the Paul Guenther, Inc., which was then taken over by the Onyx, which, in turn, was taken over by the Gotham Company. He entered their employ September, 1916. Mr. Heyde was the foreman at that time, and he was succeeded by Mr. Nobis who, in turn, was succeeded by Mr. Guenther. At the time he entered the employ of the company they had what was known as the

Richter machine, and the photographs of this machine were identified by the witness, which I will not stop to offer now, but will offer at the conclusion, because one of the original machines was produced in court. The machine was de- [fol. 290] scribed as a full-fashioned knitting machine with an attachment, the attachment consisting of a reversely-threaded spindle located in the approximate center of the machine, with automatic mechanism for racking the attachment in one direction from a pattern controlled chain of the knitting machine. It was provided with the lock which was described in plaintiff's prima facie case intended to lock the attachment when it was desired to prevent it from being operated.

On the respective threads of the spindle was located a nut so that when the spindle was turned the nuts would move towards each other or away from each other in accordance with the direction of rotation of the spindle. The ratchet for effecting this operation is shown near the center of the machine. This nut carried the stops which limited the stroke of the carrier rods. The attachment was used from the beginning of 1912 or 1913, and I understand there is no dispute as to the time.

Mr. Howson: Mr. Darby, please do not understand anything. You are probably right, but can not you leave it out rather than have it as an understanding?

Mr. Darby: All right. You raised no question in the other case.

Mr. Howson: I do not think I will now, but I don't want to be silenced by acquiescence.

I feel quite certain between you and me that we will not have any dispute on dates on that.

[fol. 291] Mr. Darby: All right. It was used, according to the testimony, from about 1912 or 1913 continuously up to about two or three years prior to the time it was produced in court, and it was used for making the so-called pointed heels. Due to the fact that in making the pointed heels you continuously racked only in one direction in the fabrication of the heel, that is the facing of the pointed heel did not require racking except in one direction,—the mechanism was provided with a handle for hand racking and putting them back to their original position for starting another stocking blank.

Then in operation the mechanism controlled by the cam of the machine would, in accordance with the pattern of the

chain effecting racking, to cause the nuts to move simultaneously toward each other.

The witnesses described these carrier rods extending the entire length of the machines on both sides, and the machine to which it was applied was the regular full-fashioned knitting machine. It was employed by them exclusively in the manufacture of stockings.

The witnesses likewise described in far more detail than I did the rest of the mechanism for effecting actuation.

The testimony of Mr. Paul Guenther was that he was employed with the Guenther Company since 1913, and he identified this particular instrumentality as one of the fourteen like it that had been in continuous use in that com- [fol. 292] pany since around the end of 1913. He testified that the machines were used in the normal production of their commercial stockings and these stockings so produced were sold. He corroborated the testimony of Mr. Roth as to their relation to each other.

Frank Heyde, who is the next succeeding foreman, was formerly with the company until 1918, and up to the time he left as foreman these fourteen machines were in commercial operation.

The next witness was Frank Nobis who testified substantially to the same effect. He was the foreman who succeeded Mr. Heyde.

Max Gruener went with Guenther in 1916 and he corroborated the other witnesses. He produced employment payroll records of the other witnesses who had testified; also produced invoices of particular stockings that had been manufactured and sold by this particular attachment. The various attachments are numbered, and this attachment was numbered 210, and the production records show the stockings still in the possession of the company that were manufactured under that particular number.

Under the stipulation I offer in evidence the exhibits referred to by these respective witnesses:

First, a set of five photographs of the attachment applied to the regular knitting machine.

(Marked Defendant's Exhibit Q-1.)

[fol. 293] Mr. Darby: I likewise offer in evidence the exhibit itself.

(Marked Defendant's Exhibit R-1.)

Mr. Darby: I offer in evidence a photographic copy of letter dated August 26, 1912, with invoices; record of employees service of Paul Guenther's and photographs taken from the files of the Paul Guenther Corporation as one exhibit.

(Marked Defendant's Exhibit S-1.)

Mr. Darby: I likewise offer in evidence a simplified perspective drawing of the attachment.

(Marked Defendant's Exhibit T-1.)

Mr. Darby: I also offer in evidence the stockings style 366 manufactured by Guenther with the attachment—that is, a commercial stocking.

(Marked Defendant's Exhibit U-1.)

Mr. Darby: There was a second prior use that I will be very brief with because it was, while there is a difference in structural details, the general principle is the same as the Gotham attachment, and it was used by the Julius Kayser Company in producing pointed heel stockings. They were the same in so far as it consisted of an attachment employing reversely-threaded spindles controlling stop ends and automatic mechanism for rotating it in one direction and manual means for rotating it in the opposite direction, and, as I say, they used it in making pointed heels.

The testimony of the witnesses which I will not review, even in the short detail that I did the Gotham attachment, [fol. 294] is to the effect that they had seventeen of those in operation from 1920 on.

I offer in evidence the testimony of Arthur W. Mutchler as contained in the record on appeal; Percy Hockin and Adolph Hecker, and the exhibits produced by those witnesses consisting of a set of photographs of the attachment in use for the full-fashioned knitting machine, photographs consisting of four in number.

(Marked Defendant's Exhibit V-1.)

Mr. Darby: I offer in evidence the employes' record cards and other documentary exhibits produced during those witness-s' testimony, consisting of six photographs, original documents.

(Marked Defendant's Exhibit W-1.)

Mr. Darby: I offer in evidence a simplified drawing of the Kayser attachment.

(Marked Defendant's Exhibit X-1.)

Mr. Darby: There was a third prior use known as the Nussbaum use. The Nussbaum Knitting Company had a flat knitting machine in which they knit sportwear, sweaters, bathing suits, and things of that kind, and it was equipped with narrowing mechanism at each end of the machine in the manner that has been described rather fully to your Honor, consisting of spindles oppositely threaded, but they were split from each other so that half was at each end of the machine. These spindles were used for narrowing and for no other purpose.

During the Summer of 1920 Nussbaum desired to produce [fol. 295] fabrics with designs between the selvage edges. They thereupon substituted fixed stops for the narrowing stops and had the narrowing spindle control thread carriers, and then automatically rotated these spindles in opposite directions according to the particular design designed to be produced, producing all different kinds of designs. That is what they call these swatches (exhibiting samples to the Court). This is a swatch showing the extreme. They are all varying designs that could be made. Likewise for plating or splicing, being one type of splicing where, in addition to the main body carrier you lay an additional thread, they wanted to plate bathing suits, one face would be of rayon, for example, and the other side would be of a different material.

Here is a set of swatches showing the plating and different combinations of plating.

The witnesses who were men familiar with machines utilizing the narrowing spindles for the purpose of producing designs of different splicing and what not were examined and they testified as to when it was done. They produced the pattern from which the fixed stops were made, the men who stopped it up and operated it and they also testified that prior to the trial representatives of the plaintiff too, to whom of course notice had been given of this prior use, had been over at their plant and they had been given just as full and complete information as we had. There is no [fol. 296] dispute that when they were using the reversely-threaded spindles for making design pattern work or plat-

ing that they were not simultaneously fashioning, because obviously they were using the fashioning spindles for the design and plating work and they therefore used unfashioned garments of the selvage edge.

So I offer in evidence under the testimony of these witnesses a folder containing ten photographs of the Nussbaum machines, with the attachment on it.

(Marked Defendant's Exhibit Y-1.)

Mr. Darby: I offer in evidence the depositions of Jacob Boch (under the stipulation, of course), Fred Drawert and Ferdinand Nussbaum, and as long as Mr. Howson has no objection, I will offer in evidence all the fabric exhibits that were offered in evidence under those depositions.

(Marked Defendant's Exhibit Z-1.)

Mr. Darby: I offer as one exhibit all of the documentary exhibits in the deposition.

(Marked Defendant's Exhibit X-2.)

Mr. Darby: And if it is agreeable to Mr. Howson, I will have the patterns, the physical exhibits, likewise included in Exhibit Z-1.

The Court: Very well.

Mr. Darby: I offer in evidence simplified drawing of the Nussbaum machine.

(Marked Defendant's Exhibit B-2.)

[fol. 297] The Witness: I am familiar with the Gotham and Kayser type of mechanism from a production point of view. This attachment as it stands could be utilized to manufacture any fabric, split or spliced only in one direction to the wale.

As to what is in the attachment which makes that possible, I will say that the two nuts that are capable of moving toward each other—the two screws are capable of turning together their respective nuts towards each other.

Q. In your last answer, did you take into consideration the fact that a pawl operated manually—I mean operated automatically under power by the machine—is provided for racking the spindle in one direction?

A. That is right, yes.

This attachment as it stands could not be utilized for making split or spliced fabrics of a design inclined at both directions to the wale.

This is because it would then have to rack the spindle—the spindle would then have to be able to be racked in both directions so the nuts could be moved toward each other and away from each other. That would require in addition to what is incorporated in this attachment a second ratchet and a pawl to operate it. It likewise would require selective mechanism to select which pawl was to remain operative. It likewise would require the necessary mechanism to actuate the machine.

Mr. Darby: I think I am about through with this witness, if the Court please, with the exception of two things: one is, the Grosser license. You will recall that was referred to in the plaintiff's testimony by the witness Thun who had [fol. 298] fabrics attached of which there were only photographs, and I wanted a chance and opportunity to examine the type of sutures in those fabrics. Mr. Howson advises me that that has not arrived as yet, but it will come. If I may have the privilege of recalling this witness when that fabric comes, to ask a few questions about it, and likewise we have set up on the same floor of this building a complete knitting machine, containing a number of sections with various prior art structures applied to it, so that we can, in the presence of the Court, knit samples of these various sutures showing just exactly what is necessary to accomplish, as well as what is necessary to avoid, and showing the operation of these various things that this witness has testified to, in actual practice. If the Court would permit us to adjourn to that room, we could probably run those tests now, or if the Court would prefer to start those tests in the morning, the cross examination of Mr. Miller could proceed now.

(Whereupon Court adjourned to Room 1242 of the Woolworth Building for demonstration tests.)

Mr. Darby: The first thing that will be done will be to use the Lieberknecht attachment with Schletter stops to show the direction of the dropstitches inclined to the wales, similar to Fig. 10 of the patent. This is the herringbone type of suture.

(Demonstration made.)

Mr. Darby: We will now show the production of what [fol. 299] has been referred to in the testimony as the two needle herringbone lap type of suture. This is all split work as distinguished from spliced.

(Demonstration made.)

Mr. Darby: I want to explain, your Honor, the adjustment necessary to be made by the mechanic was to set the carriers so they would have a lap. Up to this time they had the herringbone type. Now he is adjusting to the lap, in addition to the herringbone.

(Demonstration made.)

Mr. Darby: We will now show the defendant's commercial attachment in its normal operation, asking the Court particularly to notice the difference in purpose and operation of the end cut.

(Demonstration made.)

Mr. Darby: We will next show what will happen to the suture if the stops are not lifted in the two needle lap suture.

(Demonstration made.)

Mr. Darby: We are now going to produce a spliced clock from the mechanism which illustrates the Woodward patent. For two reasons. One reason is to show its production of a spliced clock and another reason is to show how control of the carrier rod at any part of the machine controls one or more sections when knitting.

(Demonstration made.)

[fol. 300] Max C. Miller, resumed the stand, and further testified as follows:

Direct examination (resumed).

By Mr. Darby:

Q. Counsel for the plaintiff produced the original Grosser license to which are attached some sample fabrics, Exhibits A and B, the license making it clear that the licensee was allowed to make the suture shown in Fig. A but was not allowed to make the suture in Fig. B, and the license

is dated December 18, 1930. Will you please refer to the fabric sample, Exhibit A, and state what type of suture is there shown. First is it split or spliced?

A. Split. A 2-needle lap type of split suture is shown. The Schletter structure as shown in the patent could not produce that type of suture. It would be hard to say how this particular sample was made.

Q. I mean with what equipment? Is it anything in evidence?

Mr. Howson: If the Court please, hadn't we better qualify the witness first and see if he knows?

A. That particular sample I do not know. To produce a 2-needle lap of that structure it would be necessary to have mechanism operating in principle the same as that illustrated in the Bitzer patent. That would make it.

Referring to Exhibit B, that is a split type of fabric. A herringbone type of suture is shown. This is the type of seam that Schletter described in the patent in suit as the [fol. 301] type he desired to make. In Exhibit B the suture is a straight suture. The Schletter patent could not make that type of suture inclined to the wales.

Referring to Exhibit A once more, to produce that particular structure you do not require a spindle racked in both ways. That is, automatically.

Cradle soles came in demand in the industry. I should say late in 1927; along about there.

Q. If there had been a demand for cradle soles prior to 1920, were there any attachments in the prior art that you have described in your testimony which could have been used for that purpose—prior to 1920?

A. Well, the prior art machines as shown in Lamb & Noon could have made it as also the Landenberger pin drum, or in fact any pin drum that had various projections on it against which the carriers can abut.

Any attachment that is capable of producing a cradle-foot can make any desired fancy design in the leg portion if desired.

Mr. Darby: That is all.

Cross-examination.

By Mr. Howson:

Q. Mr. Miller, will you please look at the drawing produced which is marked Defendant's Exhibit H. On that

drawing in connection with the views marked 5 and 6 I find a notation "Lamb, et al.," "Lamb, et al.," and so forth. What does that mean?

A. Lamb & Noon.

Q. Then in this summary these two sketches 5 and 6 refer to the Lamb & Noon patent?

A. That is correct.

Q. That is the Lamb & Noon patent which you referred [fol. 302] to and which is in evidence?

A. That is right. It is a single patent with two inventors.

Q. I will refer you to Defendant's Exhibit I, some photographs purporting to be photographs of a machine which I think you said that you had seen in 1935, is that correct? When did you first see that actual specific machine?

A. Some time this spring of 1935.

Q. And as to that particular machine any knowledge you have with reference to it, going back prior to 1935, was what was told to you by people who spoke to you?

A. No. In 1928 I was at Seifen & Donner in Germany, and they were the builders of that machine.

Q. Yes, but I am speaking now of the particular machine which you see photographed here.

A. Oh, that is all.

Q. And so far as the photographs go and the machine shown in the photographs any knowledge you have of that particular machine began in 1935, is that right?

A. Although Mr. Nussbaum offered to give me proof that he had been knitting on it in 1914.

Q. Yes, I know he told you a lot, but I want your personal knowledge.

Mr. Howson: In view of the answer of the witness, I wish to note a further objection and a notice of a motion to strike out all the testimony of the witness with reference to this exhibit, not only on the ground of the objection heretofore urged, but also on the ground that the machine has not been proved.

The Court: It may be allowed to stand subject to the objection.

[fol. 303] Q. Now, I want to ask you the question so we can be certain we understand each other: At page 330 of the typewritten record of your testimony you refer to the 4-needle lap split and you were asked the question:

"Q. Is the attachment shown and described in the Schletter patent able to make this type of suture?

"A. No."

You gave that answer, did you not, because, as you have read the drawings of the Schletter patent in suit, you understand that the undercut stops are intended to rock?

A. That is right.

Q. Now, at page 332 of the record of your testimony you made this statement:

"2-needle lap, although there may be attachments that still use 4 laps that have not been changed over."

is used in the art today—maybe you had better look exactly at the question and answer (handing testimony to witness).

The Court: The question was "What type of lap is employed in the art principally today?", and the answer is "2-needle lap, although there may be attachments that still use 4 laps that have not been changed over. But most of them, as far as I know, have changed over to 2-needle laps."

A. Yes.

Q. Now, I want to know what you really know about that.

A. I know of mills that had the pins fixed—with the fixed [fol. 304] pins, for instance, like you would use for splicing, you could make 4-needle laps, but when you have to make 2-needle laps you have to have the pins movable.

Q. You say you know of mills. How many mills?

A. Well, I saw a machine—what is the name of the mill where we went?

Mr. Walter Darby: Barnett Hosiery.

A. (Continuing.) Barnett.

Q. Any others?

A. No, that is the specific case I have in mind.

Q. How many mills are there in the country?

A. I think about 360.

Q. Do you happen to have any knowledge or information at all as to the attachments which are today being used by the Textile Machine Works, for instance, whether they are selling more of the 2-needle or——

A. No. I don't know that.

Q. You do not seem to have any real knowledge at all, do you?

A. Not in answer to the questions you gave me, no.

Q. I would not think so. Now you said this morning that you should say that the cradle-foot type of stocking was first introduced in 1927. What real knowledge have you about that?

A. Merely from various talks with mill people from time to time.

Q. Just sort of general information?

A. That is all.

Q. You would not be willing to fix it at any particular date?

A. Oh, no.

Q. Mr. Miller, I want to ask you to look at the patent drawing, Fig. 1. Now you testified that you could not under- [fol. 305] stand what was intended to be shown in this drawing by way of a device for operating the chain 70 from the camshaft, or to put it more specifically actuate the pawl 71 from the main camshaft.

A. That is right.

Q. At the time you made that answer you referred to the fact that you had a blurred copy of the drawing in your possession. Was it due to that that you could not understand it, or did you mean——

A. Oh, no. I have seen clear copies.

Q. Did you study that very carefully?

A. Oh, yes.

Q. Let us look at it. In the specification I find this:

"I preferably employ as shown, a second pattern chain 70, to which step-by-step movement is imparted by the operation of cam 35ª on a lever carrying the pawl 71 (Fig. 1) to impart movement to the ratchet wheel carrying the pattern chain aforesaid having studs 72 operating a spring-pressed lever * * *."

Now the pattern chain 70 is that which is shown in Fig. 2, the plan view, which is at the back part of the machine and is also shown quite clearly and designated in Fig. 1; is that correct?

A. That is right.

Q. Now, you also clearly see and understand what is referred to as the pawl 71 which is intended to operate that chain?

A. That is right.

Q. And that pawl it is perfectly clear to you, in operating that chain that pawl will have to be operated up and down the way any ordinary pawl is to move the chain; that is [fol. 306] correct?

A. I assume that, although there is not a ratchet on there.

Q. Oh, well now—all right, you will assume it. Now, you also understand, do you not, that the actuation is to be brought about by the cam 35ª?

A. No. That I am not clear on, Mr. Howson, because the cam 35ª is mentioned in the patent as being the operating cam, the companion cam to 34ª.

Q. Let me refer you again to the specifications which

"step by step movement is imparted by the operation of cam 35ª on a lever carrying the pawl 71."

That is what the patent itself says.

A. But it also says that 35ª is the operating cam for those rollers that go up and down. You see those other rollers?

Q. Yes, sure. It has the double function, but here it specifically says, regardless of what else it states, that the cam 35ª is intended to operate a lever to impart motion to pawl 71. There is no mistake about that, is there? That is plain English.

A. Well, as one skilled in the art the reason it is hard for me to believe that is because the cam 35ª that moves a member this way could at the same time move a member this way (illustrating), realizing that the cam must have a start from its hub it would be very difficult for me to conceive.

Q. But, Mr. Miller, forget all that. I am asking you if it is not plain from the language of the patent itself that what he said is this cam 35ª acts on a lever to impart motion to [fol. 307] pawl 71. Doesn't he say it?

A. I know, Mr. Howson, but do you mean to tell me that 35ª cam functions to move both the upper roller 31 and also to rack the chain? Is it the same cam?

Q. I will leave that to you. I am asking you whether it is not perfectly plainly stated in the specification that cam 35ª does actually operate on a lever to move pawl 71?

A. Well, the lever that is shown there could not be made to do that.

The Court: No. Just answer the question.

Q. Won't you answer the question?

A. Oh, you mean the language, yes.

Q. In Fig. 1 you see the bracket which is secured to the member 41 and you see this member which is also mounted on the bracket and extends to the right, to this post plainly shown in Fig. 1, which is mounted on the frame of member 2 and which is not lettered, you see that, do you not?

A. Yes, sir.

Q. And you see perfectly plainly, do you not, that if that member is pivoted to the bracket at the bracket which is shown there secured to the member 41 and has a third member to the left of that bracket and this longer member extended to the right, that must obviously be the lever that is referred to in the specification. Isn't that true? How can you doubt it?

A. I am again doubting it because of its lack of workability.

Q. We will come to the question of workability later.

A. It is the lever.

Q. That must be the member, isn't that so?

A. The only one that could possibly be.

[fol. 308] Q. Now, if you were not trying to misunderstand it, if you were trying to understand it——

A. I am not trying to quibble, Mr. Howson.

Q. Well, I guess I was getting excited at the time. I will put another question. Now we have got this far, that you see in Fig. 1 by looking at it as distinctly referred to in the specification, this member which is obviously a cam which is intended to be actuated by the cam 35ª; you see it perfectly plainly and it must extend to the right, as shown, isn't that so?

A. Exactly, Mr. Howson, but you notice you speak of the fulcrum of the lever, if it is the lever. This is a very confusing thing. You see this little pin that you call the fulcrum; what makes you say that is the fulcrum and this little pin that looks like it is not the fulcrum?

Q. Well, what do you think?

A. I am asking you.

Q. Tell me what you think about it? Maybe you better sit down.

A. If as you suggest the fulcrum is on the member 41, what is holding that up at the present time in that view; why doesn't it fall down? Mr. Howson, the trouble is——

Q. No, don't tell me what the trouble is, just answer the question.

A. What did you say?

Q. If you say that this bracket member is pivoted at 35 rather than at the point I direct your attention to, why doesn't it fall down; why is it standing in the position where you actually see it in the drawing?

A. Because it is only a drawing.

Q. I see. In other words, while the drawing shows it impossible to mean what you say, you think it may mean that because the drawing shows it in the position which it [fol. 309] could not be in if it was pivoted on that member and you are not sure that the draftsman intended to show it that way, is that it?

A. No. I meant that on the paper, you can indicate it on paper there any way you want and it won't fall off on the paper. You said it would fall down but I say it won't fall down on the paper.

Q. Is there anything shown in that drawing which supports it?

A. No.

Q. You are suggesting therefore that it is a lever, aren't you? You are suggesting the possibility that it is pivoted to the lever?

A. If it had two views, I could tell you what it was, but nobody can tell what it is with only one view of it.

Q. Well, we will pass that. Now then, assuming that you were trying to find out what lever the specification was referring to, and you knew from the drawing that if he meant that it was pivoted at the point you suggested on the member 41, that it would require some additional support for it that is not shown there, and therefore it cannot be pivoted, or it is probable that it is not pivoted there, then you would have to go to the other end of the lever and say that is the pivot then that he is referring to?

A. Let me see this. Even now, when I saw it on the model, up to that time I did not realize that that could possibly mean that that little right angled thing there was fastened to the lever. I often wondered what they meant by that right angled thing because it is not fastened to anything and because there was not a second view of it.

Q. I don't think you are trying very hard to understand it, but we will pass that. Now, assume, in view of what I [fol. 310] have said, that the pivot point is at the upper end

of the bracket and not on 41, then the specification obviously and evidently refers to that member pivoted, as the lever that is intended to be related to cam 35ª, is that correct?

A. Assuming that.

Q. You know, of course, that 41 is the member which is intended to be moved to the left to shift to put the mechanism in operation, and that shift to the left would move the end of that lever into the operative path of cam 35ª, don't you know that?

A. Yes.

Q. All right. Now, then, the only thing missing, if you are willing to go as far with me as I think you should in the assumption——

A. I want to, Mr. Howson.

Q. (Continuing.) The only thing missing in the whole patent is one thing, and that is this lever that we have been talking about is at the front of the machine and chain 72 and its pawl it has to be operated with is at the back of the machine?

A. Yes.

Q. That necessarily means, does it not, that in order for this lever to operate that pawl, you have got to have a connection from the front to the back of the machine so that when the lever operates it will rock the pawl, is that right?

A. Yes, you will have to have something like that.

Q. And you would not have much difficulty in putting it on if you went to do that job, would you?

A. Of course, I am an inventor.

Q. I see, you are highly skilled. All right, we will let it go at that. Mr. Witness, I want you to look at the model, and assuming that this member (I wish your Honor would see that), assuming this is the lever in front of the machine we are talking about and this is the pawl back there that [fol. 311] operates the chain 70 as you said, it needs a connection from this lever to the pawl so that it can work the pawl; don't you think that model is a perfectly fair illustration of what any mechanic would put on there if he wanted to follow that drawing?

A. Mr. Howson, that overhang right over here to draw the chain has bumps on it and has to do some work. Whenever you move a ratchet that has a chain on it you have to have relatively accurate piece of mechanism because the links of the chain are as short as possible so that the motion has to be quite accurate——

Q. We are not discussing the merits of this thing, we are discussing whether or not the manner in which the connection is made in the models between that front lever which is perfectly plainly shown in the drawing and the pawl which it has got to operate is not one way—one rather obvious way that a mechanic could make that operate?

A. I would not say it was a practical way. I am not trying to quibble. I just still don't see how this arrangement could work.

Q. You said that a great many times. What I am asking you now is about the connection. You said it is not practical. That does not mean that it would not operate, does it?

A. A construction like that in the full sized machine, would not operate.

Q. Are you sure?

A. Absolutely.

Q. Have you ever tried it?

A. No, but my knowledge of engineering certainly teaches me that. I think the leverage here, Mr. Howson, of one inch to about twelve——

Q. All right, as to that point, of course, in following the drawings, particularly patent drawings, if you had a lever [fol. 312] which showed a short end, which you thought would give you too much or too large a proportion, you would make it a little longer, and in doing that you would not be exercising your skill as an inventor as distinguished from a mechanic in doing that, would you?

A. As to this whole illustration of that rack and chain, until I saw it on here, I had no knowledge of what it was——

Q. Then, you had a sudden awakening and that was something you wanted to know. That is fine.

A. I was following the drawing, and that is all I had to go by.

Q. Of course, you had the specification, too. I want to come back to this connecting member. You say it won't work. You mean it won't operate, or do you mean it would not be practical and stand up?

A. I don't say that from this lever arrangement, that is not my main criticism.

Q. As far as that goes, the lever and connection would work all right, would they?

A. I said before that it would not work on a machine as it is here, but my main objection is something else.

Q. Let us get back to this objection. You say it won't work on a full-sized machine. It is quite important for us to know what you mean, whether it would not be operative at all or whether you think it would not work in a continuous practical sense?

A. I don't think any machine builder would ever put out a machine with that.

Q. You still won't answer what I asked you. I want to know whether it would work; have you any reason or opinion, and if so, will you state whether a thing made like that would or would not work?

A. It is offset too much. It would not work. The load is too great.

[fol. 313] Q. Then, you mean that the short end of the lever is too short for the long end? Is it your testimony that that would not operate at all?

A. Not as it is if it was put on a full sized machine. As to this model, yes, you can make this work.

Q. I am talking about a full sized machine made in that way. You say it would not operate at all?

A. What do you mean by "at all"? It would not move the chain as accurately as it must be moved.

Q. In other words, you could not make a stocking on it?

A. Well, if you do not move the chain step by step accurately, you cannot make a stocking.

Q. So you mean to testify, although you never have made a machine; never have tried it, that the connection if duplicated in a full sized machine would not actually work well enough to make a stocking, is that your testimony?

A. Absolutely not, with that offset. You have got a tremendous offset here and I don't see how you can get away from it. This (indicating) has to be in the back and this in the front.

Q. Mr. Miller, just to make it perfectly clear, you say you have not put up a full sized machine in your life?

A. No.

Q. And you have never seen it in a full sized machine?

A. No, I haven't seen this; this never has been built.

Q. So you are not speaking from actual knowledge or information, but just from your inventorship sense?

A. No, just engineering ability. That does not take invention.

Q. And it would not even make a stocking.

A. No.

[fol. 314] Q. And you are as clear on that as you are on your testimony all the way through here?

A. I don't know what other testimony you mean.

Q. Well, perhaps that wasn't a fair question.

A. That covers a lot of ground.

Q. You recognize the perspective view shown in Plaintiff's Exhibit 15 as substantially the same as the model, do you not?

A. Yes.

Q. In connection with the matter we have spoken of?

A. Yes.

Q. And it is your testimony, as I understand it, that by reason of this distance between the front and back, or the offset, as you refer to it, that you could not make a stocking on it if built into a full sized machine?

A. That is true.

Q. And you want to stick to that. All right, Mr. Darby, that is all.

Redirect examination.

By Mr. Darby:

The Witness: In my experience with knitting machines concerning which I have testified in my direct examination, I have never seen any mechanism employed in knitting machines like the mechanism consisting of the right angled bracket and the arm and this device, whatever it is which is undesignated and undescribed in the patent in suit, other than in the paragraph that Mr. Howson read to me. I have never seen any mechanism similar to that. They do not resemble in any respect any mechanism employed with any machines as I am familiar with them. From my experience with knitting machines, in the absence of a description thereof, I would not know from looking at this drawing what they are. I am puzzled over it. I will explain what [fol. 315] I meant by saying that they displaced cams of the chain 70 and the shaft 5. The cam shaft is in front of the machine; this chain mechanism must of necessity be on the back of the machine according to those drawings, so you have to reach from the back to the front somehow. As to what that means in practical terms in connection with the mechanism necessary for spanning that distance, I will say that you would have to put something in there to do it. It would have to be particularly rugged. That construction

that is used on the model and in the drawings is a mere solid piece of metal and there isn't any construction there that would actively move anything at the end of it from the center. The reason there is necessity for accuracy of movement, is as follows: Chains are fitted with bumps to operate such things. It is also desirable to make a chain as short as possible, so the links are made as short as possible and the bumps in many cases have to move relatively quite a lot so that between those different movements you finally end up with a chain motion that has to be relatively accurate. In the model that has been produced, the chain has been dispensed with and the bumps put right on the shaft itself, or collar of the shaft itself.

I was in the courtroom throughout the testimony of plaintiff's expert, Mr. Meyer, in which the subject of his present practices was covered. My testimony was concerning the present practices as stated in connection with Mr. Meyer's testimony.

Recross-examination.

By Mr. Howson:

Q. Mr. Miller, I suppose pawling mechanism for operating pawls from the cam in connection with full-fashioned [fol. 316] knitting machines are multitudinous, aren't they?

A. Yes.

Q. In endless variety?

A. Oh, yes.

Q. I dare say you, with your experience, if you wanted to provide a suitable mechanism for operating that pawl from the cam shaft, you could do better than what is shown in the drawing, could you?

A. The problem, Mr. Howson, is not just putting in that lever. I tried to say this before, but it is a question of timing. There aren't any cams shown there as to the timing relationship, when the chain must move in relation to the up and down motion that is associated in combination with cam 35[a] and another part.

Q. You always get away from the precise thing I am talking about. Suppose you have your cam 35[a] and you know that you are going to use that cam—let us assume that it is the only thing you are going to do with that cam to operate the pawl, would you have any difficulty whatever, you or any other person familiar with the mechanism and

the art, to put in a suitable connection to operate that pawl from cam 35?

A. I never just happened to have that problem come up. Perhaps I could do it, because I am skilled in the art.

Q. But you had a terrible time in figuring out what that was?

A. I actually did, Mr. Howson.

Mr. Howson: That is all, Mr. Miller.

[fol. 317] Louis Hirsch, called as a witness on behalf of defendant, being first duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

The Witness: I reside at 41 Clifton Terrace, Weehawken, New Jersey. I am President and General Manager of Louis Hirsch Textile Machines, the defendant in this action. I have been serving in that capacity with the defendant corporation since its formation in 1928. I was formerly manager of L. Hirsch, Inc., that was in 1910. I have been with them since then, ever since 1910. My company is engaged in the business of selling, importing and manufacturing full fashioned hosiery machines, parts and attachments. Our business includes importing foreign made machines as well as manufacturing knitting machines in this country. We import the Karl Lieberknecht, the Kalio full-fashioned machines of foreign make. I am familiar with the attachments sold by our company, concerning which we are charged with infringement in this case. We began to sell those attachments in 1927. The first attachments that we sold were imported by us from Germany. We do not still import them from Germany. We make them here. As to whether there is any substantial difference in the prices of the attachment for a knitting machine and the knitting machines themselves, I will say that the price of the knitting machine is $9,000 to $10,000, and the price of the attachment $350. I am personally familiar with the circumstances under which we first purchased or obtained from abroad [fol. 318] the attachment that is charged to be an infringement.

In the Summer of 1927, Mr. Lieberknecht personally and Mr. Frank L. Chipman, at that time president of Charles Chipman Company, and also a stockholder of the Rosedale Knitting Company, and I, met in Reading, Pennsylvania, and Mr. Chipman expressed the desire to have an attachment built for him which was capable of making a split suture all along the side of the stocking and ending with a so-called pointed heel. Mr. Chipman and Mr. Lieberknecht and I went into details. We ordered an attachment capable of producing a fabric of that nature from Carl Lieberknecht. We did that in the ordinary course of business and in March, 1928, Mr. Lieberknecht sent over an attachment.

Q. Have you a copy of your order in German, and a translation thereof?

Mr. Darby: You do not object to a photostatic copy, do you, Mr. Howson?

Mr. Howson: No.

(Document handed to the witness.)

A. That is another order.

Q. All right, tell me about that order. This is dated October 24, 1927.

A. One of our customers, the Minisso Company of Philadelphia, sent us an order to make designs as per the sketch, which is also attached to this copy of the order. That is a photostatic copy of the order, taken from the official records of my company. That is a translation of it.

At the time we placed this order, we had not heard of any Schletter attachments. We did not know of any Schletter attachment.

[fol. 319] Q. When you placed this order with Carl Lieberknecht, how much time elapsed between the time of placing the order on October 24, 1927, and the time when the machine was received?

A. Eight or nine months.

Mr. Darby: I offer the order and translation in evidence.

The Witness: You asked me about the Rosedale attachment, that is another one.

Q. All right, go ahead with the Rosedale attachment?

A. Eight or nine months, because it was an entirely new attachment to be developed.

(Marked Defendant's Exhibit C-2.)

Q. So that you had on order with Lieberknecht an attachment for the Rosedale as well as an attachment for the Minisso Company?

A. Yes, sir.

As to which attachment was received first, I will say that I would have to refresh my memory on that. The Minisso attachment was delivered on September 27, 1927, and some more attachments were delivered on March 14, 1928. Those attachments were all for variable split attachments which means deep lining for increasing the distance from the selvage. They were of the reversely-threaded spindle type that is here in court under charge of infringement. They were the same in all respects then as you first received them as they are today as you sell them. There may be some very minor changes. Insofar as the reversely-threaded spindle, they were the same. Insofar as the stops capable of producing two-needle laps were concerned, they [fol. 320] were the same. Insofar as the stop control mechanism is concerned, they were the same. Insofar as they used a single chain instead of a double chain, they were the same. The Rosedale attachment was delivered on March 12, because this was an entirely different attachment, which had many features on it which the others did not have.

Q. The Rosedale attachment of March 12, 1928,—you have a photographic copy of the original invoice of that which you produced?

A. Yes.

Mr. Darby: I offer the photographic copy of the original invoice in evidence.

(Marked Defendant's Exhibit D-2.)

Q. And have you continuously imported or made here the attachments similar, so far as those details I spoke of a few minutes ago, since that time continuously from them?

A. They have delivered some attachments since then.

Cradle soles first came into demand in the industry somewheres around 1927, the latter part. As to whether there was any connection between the use of cradle soles in the industry and the demand for our attachment, I will say that the industry developed the salability of cradle sole stockings because of their going hand in hand with the style of shoes coming in. That means low shoes with very

low heels, and the endeavor of the hosiery manufacturers was to create stockings which would synchronize or which would go with those shoes; that is what created the big demand for cradle soles since 1927 because the shoes were very low and the reinforcement which was heretofore employed in manufacturing hosiery was too wide or too [fol. 321] clumsy and showed a way on top of the shoes, which was a very objectionable feature and they only could overcome that by reducing the sole portion and also forming the sole portion according to the form of the shoe.

The attachment that we obtained from Lieberknecht in response to Minisso and Rosedale's requests was not created for the purpose of cradle soles. At that time it was too early. It was not in demand. But that attachment has since been used in the manufacture of cradle soles.

As to whether during the time we supplied knitting machines from 1910 on we supplied machines with long and short nose sinkers, I will say that we did supply machines which had long and short nose sinkers only there where split was formed, and inasmuch as split sole was only used in suede lines the long and short nose sinkers were only in that very small area. I mean to cover the distance of about 4 or 6 needles. Since 1928 we have not supplied any machines with long and short nose sinkers.

I can state my familiarity with what is done in the industry. I am connected with the knitting industry since 1888, in part directing manufacture, in part developing styles, in part quality, and I have kept in constant touch with hosiery and knit goods and therefore I have to have a rather intimate knowledge of the machines and of the things the machines can do in order to help develop the industry.

I have personal contact with the various knitting concerns in the United States as part of my regular duties. I keep advised as to what they are doing and how they are doing it, [fol. 322] and they come to me in many instances to ask me as to whether a certain style or articles could be made and in order to answer correctly I have to have knowledge of the machine and what the machine can do.

Based on my knowledge thus obtained I will state that I have not seen the long and short nose sinkers used in the manufacture of commercial hosiery products since 1928. It has not been used because the formation of the split as it is used since 1928 does not need long and short nose

sinkers. When I say "the formation of splits," I am referring to the herringbone type of split. They have eliminated the herringbone type of split.

Mr. Darby: That is all.

Cross-examination.

By Mr. Howson:

The Witness: I would not say that I have any personal knowledge of what the practice of the Textile Machine Works, the plaintiff in this case, has been since 1928 in the matter of supplying long and short nose sinkers, because I did not see all the attachments and I did not see all the machines. I only can rely upon what I am told as far as their products are concerned.

What I was saying in my direct examination about long and short nose sinkers has particular reference to our own machines.

In the Hofman case I think I testified that it was this order of March 12, 1928, which was the order for the first attachment that we made.

Q. On this order which was received March 12, 1928.

[fol. 323] A. Was it the attachment for making the split?

Q. That was an order for the Rosedale Knitting Company.

A. Rosedale Knitting Company?

Q. They are located at Reading.

A. Reading, Pennsylvania. That is where the plaintiff is located. Mr. Lieberknecht was in this country at that time. He was there at Reading off and on. He came over twice a year. I cannot recall how long he had been up there at that time. It is quite customary for me and other knitting machine manufacturers to keep fully and promptly informed as to all machines and attachments, and so forth.

I personally had nothing to do with the designing of the attachment; that was left to Karl Lieberknecht. I only pointed out the articles that were to be manufactured. As to whether it was customary at that time for Lieberknecht to have his own fixers in this country to install machines in the different mills, I will say that we had a staff of erectors and mechanics who partly originated from Germany but who were constantly in our service, but they had no connection with the factory over in Germany. They may have been in constant touch with the factory, I do not know.

Only then privately, not officially. I not only testified in the previous suit but I was present during the trial and assisted Mr. Darby in the trial to a certain extent. I testified there that it was our purpose to contribute to the defense of that case. Hofman is doing the same thing here at this trial. His representative, Mr. Weinberg, has been here. We are each helping the other out.

I was talking about low shoes and cradle foot stockings. [fol. 324] As to whether the manufacturer of shoes and the manufacturer of stockings to fit the shoes or suit the shoes work pretty much hand in hand, I would say they follow each other very closely. The manufacturer of hosiery follows the trend of the shoe styles very closely.

As to whether the hosiery manufacturer would not make a stocking unless he could make a shoe that it would go with, and the shoe manufacturer certainly would not make the shoe unless suitable hosiery was going to be available for it, I would not go as far as to say all that. The shoe manufacturers come out first and the hosiery manufacturers follow suit with their products to conform with the style of shoes.

As to whether hosiery manufacturers, or the hosiery industry, permit the shoe manufacturer to tell them what kind of stockings to make, I will say that the shoe manufacturer is not concerned about any kind of stockings. He does not come to the hosiery manufacturer and point out what the hosiery manufacturer can do for him. He does not care, to my knowledge, and according to my personal experience, I would not find any reason to say that does not frequently occur in the experience of others, because I do not see any reason.

Q. Until you brought out this attachment which you say you obtained on this order in 1928——.

A. 1927. The order was placed in 1927 and the machine received in 1928. Prior to that time we had been selling the Karl Lieberknecht knitting machines since 1912.

On the Karl Lieberknecht machines that we were selling prior to 1927, there was no attachment which included re- [fol. 325] versely-threaded spindle with automatic means for operating it in both directions for making any such designs as our customers asked us for in 1927.

Karl Lieberknecht, for whom we sold, was not furnishing in America on his machines any other attachment for

doing that kind of work; the kind of work we are interested in here, leaving out of consideration the old one-way pointex attachment.

The attachments which we first commenced to obtain in 1928,—the first order in 1927—have become standard on our Karl Lieberknecht machines.

Q. And do you consider them important to the full-fashioned knitting machines?

A. These or any other attachments for the same purpose in order to create a certain style of stockings.

Q. But do you agree that an attachment such as that which is involved in this suit for doing that work is really essential to the machine today unless some other attachment could be found for doing the same work?

A. I would consider simply an improved well known attachment which has a wider range——

Mr. Howson: I object, if the Court please. He is not responsive to the question.

The Court: Answer the question put to you, Mr. Witness and we will progress more rapidly.

Q. (Read.)

A. I would have to answer yes and no.

The Court: Yes.

[fol. 326] The Witness: Yes. An attachment creating that style is essential.

In my deposition in the Hofman case I said:

"As to the Karl Lieberknecht machines at present we equip all of them with that attachment, because the style demands that kind of construction of the stocking. For the present it would be hard to sell a full-fashioned machine without an attachment of that kind."

I agree to that.

Mr. Howson: That is all.

Redirect examination.

By Mr. Darby:

The Witness: We did not have any demand for an attachment capable of making reverse designs prior to this request from Minisso and Rosedale.

Our first attachment was capable of making the 2-needle lap suture. As to whether I was familiar with the attachment, or became familiar with the attachment sold by the plaintiff company, the Textile Machine Works, I will say that I am not mechanic enough to judge that. I only know what they can produce; not the way they are constructed.

Q. But from the terms of their production were the attachments of the plaintiff company that you first became familiar with capable of producing a 2-needle lap suture?

A. I could not answer that.

Mr. Darby: That is all.

(Witness excused.)

[fol. 327] ALFRED FRIEDMAN, called as a witness on behalf of the defendant, being duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

I reside at 936 Franklin, Wyomissing, Pennsylvania. I am a sales engineer employed by Louis Hirsch Textiles, since 1925. I have been connected with the knitting industry all told, at least sixteen years.

I am familiar with the attachment made and sold by the defendant and here charged to constitute an infringement. I have been familiar with it since it was first received in the United States. I am familiar with the attachments that have been made and sold by the plaintiff in competition with our attachments. The attachment of the defendant is capable of producing a 2-needle lap suture. I am familiar with the type of suture produced by the competitive attachment first put out by the plaintiff company. It made a 4-needle lap split seam.

To my knowledge, the defendant company first produced a structure capable of producing a 2-needle lap in an attachment which was delivered to the Rosedale Knitting Company in March, 1928. I first became familiar with a machine or attachment built by the plaintiff company that was capable of producing a 2-needle lap, at least three years thereafter. It was after March, 1928. Prior to that time the attachments that I had seen of the plaintiffs were of the 4-needle lap type. I personally supervised the erection

of the machine that was demonstrated to the Court as part [fol. 328] of the trial yesterday. I am familiar with its entire structure and setup and operation.

Mr. Darby: I state to the Court that I am merely qualifying this witness in case there is any cross-examination which counsel may care to make on that demonstration yesterday. That is all.

Mr. Howson: No cross-examination.

(Witness excused.)

Mr. Darby: I offer in evidence the exhibit which has heretofore been marked Defendant's Exhibit B for identification during the plaintiff's side of the case.

Mr. Howson: I object to it as irrelevant.

The Court: Received subject to the objection.

(Defendant's Exhibit B for identification marked in evidence.)

Mr. Darby: I offer in evidence Defendant's Exhibit C for identification which was marked for identification during the plaintiff's side of the case.

Mr. Howson: Same objection.

The Court: Same ruling.

(Defendant's Exhibit C for identification marked in evidence.)

[fol. 329] Carl E. Weinberg, called as a witness on behalf of the defendant, being first duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

I reside at Weehawken, New Jersey. I am secretary and general manager of Alfred Hofmann, Inc. That is the defendant in what has been here referred to as the New Jersey trial. It was a New Jersey trial but it was a Delaware corporation. In other words it was a Delaware corporation that was defendant in the New Jersey trial.

Our company does not manufacture the Hofmann attachment, or what has been referred to here as the Hoffmann attachment, charged to be and held to be an infringement.

That is imported from Schubert & Salzer in Germany. Our company imports the Schubert & Selzer knitting machines. We do not manufacture either the knitting machines or the attachments in the United States. We manufacture certain attachments, but not that particular one.

There is a substantial differentiation between the price of knitting machines and the attachments that we sell, referring to that particular attachment, of course. I can approximate what it is. Whereas the full-fashioned knitting machine, which today usually consists of 24 sections and is probably a 45-gauge machine, would sell around $9,500 to $10,000, the attachment here involved sells for around $350. I am familiar with the circumstances under which my company first acquired an attachment of this nature from Schubert & Selzer.

[fol. 330] The first attachments of the type here concerned were single motion attachments. In other words, attachments where the reverse motion was not supplied. That type was first supplied to Paul Guenther in Dover as per an order of October 27, 1922. The first attachment with reverse motion was one which was supplied to a company called the Waldensian Hosiery Mills of Valdez, North Carolina, against an order taken on May 28, 1928. That order called for two attachments, one of which was delivered about August, 1928, and the other about January, 1929.

The circumstances that occasioned our ordering an attachment with reverse movement were as follows: At the time of ordering this attachment there had come into vogue a style called cradle-foot. This style was the outcome of a toe reinforcement which was called the "offset" foot. That was a double step. That double step was more or less unsightly, and therefore manufacturers began to create stockings with a more gradual reinforcement called the cradle foot. This particular customer submitted to us a sample of such a stocking and asked us if we could furnish such an attachment to make such a stocking. We told him that we thought we could, and we corresponded with Schubert & Selzer in this respect.

The attachment which we received with single motion attachment was not satisfactory, whereupon we corresponded further with Schubert & Selzer and told them that that was not what we expected. They wrote us a letter on June 6, 1928, which in translation, reads as follows:

"In the meantime we have also received your letter, No. [fol. 331] 324, of May 17th, and from the contents of this letter it appears to us that there is a misunderstanding concerning the functions of the pointed heel attachment which should be clarified immediately. If today on the strength of the sample which you sent us you declare that no double pointed heel but you understood a zig-zag pointed heel, we can only reply thereto that previously you never gave us any intimation of such an interpretation so far as this attachment is concerned. When we have spoken of double pointed heels we have had reference to a heel consisting of two pyramids or two points, which the name of the attachment itself already expresses, but never have you or we made any reference that with this attachment zig-zag designs should be worked. These zig-zag designs of course can be made without pointed heel attachment only. In that case the attachment must be arranged accordingly so that it can be worked forward and backward. Whether it is desired to work one or two points is of no consequence and whether pointed heel attachment operates with spindles, and we think you can work any desired zig-zag pattern. Naturally the movement cannot be over four needles."

Therefore, thereafter we received the attachment for this particular company, made delivery of it and installed it. The records showing the order for that attachment was introduced in the record in the Jersey suit. The order [fol. 332] form is shown on page 571 of the record in the Hofmann case.

Mr. Darby: I offer the order form in evidence.

That is the order for this particular attachment.

(Marked Defendant's Exhibit E-2.)

I have made a drawing illustrating the toe construction that I testified about. This is the toe construction prior to the introduction of the so-called cradle-foot, known as the offset toe. This is the offset toe. I diagrammed this here in the court room for the purpose of my testimony.

Mr. Darby: I offer it in evidence to illustrate the witness' testimony.

(Marked Defendant's Exhibit F-2.)

At the time we received this request for the attachment from this mill we had not heard of any such thing as the Schletter attachment. We had not seen any attachment on the market of the reversely-threaded automatically actuated spindle. We had not heard of Schletter at all in connection with attachments of this nature. I knew Schletter, but not in this connection. We had not seen or heard of any reverse motion attachment that was being put out by the plaintiff company at that time capable of doing this work. That is, the attachment represented in the Schletter patent.

Mr. Darby: That is all.

[fol. 333] Cross-examination.

By Mr. Howson:

Q. Where is the letter?

A. (Witness hands paper to Mr. Howson.)

Mr. Howson: You have no objection to putting this entire letter in evidence, have you?

Mr. Darby: No.

Mr. Howson: You just read part of it.

The Witness: Yes.

Mr. Darby: I have no objection at all. That is not a letter. It is excerpts from cables and letters. I have no objection to putting it in.

By Mr. Howson:

The Witness: Schubert & Salzer is a very substantial concern. It is one of the largest knitting machine manufacturers in the world. My concern has represented them in this country since 1911, and we have sold full-fashioned knitting machines since 1920.

Q. And prior to 1920 did Schubert & Salzer furnish for this country an attachment for doing any of the work that can be done by the attachment of the patent in suit; I refer to insert clocks, reinforcements at the selvage running in two directions, and so forth?

A. I could not testify to anything that happened before 1920, Mr. Howson, except from my general information I know that they did not.

Answering the question from 1920 on up to the time we brought out our attachment, I will say—No.

[fol. 334] If any other device or attachment capable of doing the work involved in the attachment in this country was put out by Schubert & Salzer, I do not know it.

It is correct that when we furnished the first attachment which was involved in the Hofmann suit, and held there to be an infringement we ourselves had nothing to do with the designing of the attachment. We simply sent the order to our principal, Schubert & Salzer, and they supplied the attachment.

At that time Schubert & Salzer were sending their own mechanics to this country. These mechanics were in our employ. But it was their function to go to the different mills and install and fix the Schubert & Salzer machinery. Wherever we had sold machinery these mechanics would install the machinery.

The Hofmann attachment, the one involved in the Hofmann suit became standard equipment on the Schubert & Salzer machine which we were selling, up to the time where the plaintiff sued the Delaware corporation—to that date. It was regularly furnished until that date with all the machines.

Q. From the time that you began to get them, when you ordered this first one?

A. It was.

Mr. Howson: That is all.

Redirect examination.

By Mr. Darby:

The Witness: It is correct that I said on cross examination, that prior to the time that we ordered the first reverse motion attachment, we did not sell any attachment that was [fol. 335] capable of making the designs that the reversely-threaded attachment was capable of making.

We did not have any demand for any attachment which would make this type of designs up to that time.

(Witness excused.)

Mr. Darby: I offer in evidence page 186-31 of plaintiff's catalogue of 1930, which has heretofore been marked Defendant's Exhibit D for identification.

(Defendant's Exhibit D for identification marked in evidence.)

Mr. Darby: If the Court please, defendant rests.

Mr. Howson: If the Court please, there is just one little matter I want to make a comment on, just by way of reserving a right if we have any. One of the defenses in this case set up by the defendant's answer and included in their particulars, is an alleged prior knowledge and use in Philadelphia at a mill called the Torresdale Hosiery Mills. Mr. Darby in his opening did not refer to that defense, but I asked him whether or not they were going to rely on it and he said he was not sure at that time, and later he told me not, in accordance with his promise. But by reason of that defense and by reason that it was included in the particulars, the plaintiff went to a very great expense in preparing to meet that defense. I just want to make a note on the record at this time that before the case is over we will wish to present [fol. 336] to the Court the question whether or not under the circumstances we ought to have special costs or expenses in connection with that particular defense. I do not understand that the statute requires us to thresh that out now, and I suppose it can better be done at a later time.

The Court: You want the record to show that what rights you have in that respect are not waived at this time.

Mr. Howson: Yes, sir.

The Court: The record may so show.

Plaintiff's Rebuttal Proofs

Mr. Shaw: If your Honor please, in accordance with the stipulation I want to offer certain depositions in the Hofmann case.

I offer the testimony of Sidney Mayer, which is found in the Hofmann record at pages 317 to 319. During the testimony of Mr. Mayer he referred to an exhibit in the Hofmann case known as Plaintiff's Exhibit 8, and this exhibit corresponds to Plaintiff's Exhibit 17 in this case.

I offer in evidence a stocking which was marked in the Hofmann case as Plaintiff's Exhibit 35, and ask to have it marked in this case as Plaintiff's Exhibit 40.

(Marked Plaintiff's Exhibit 40.)

Mr. Shaw: I also offer the testimony of Floyd E. Groff, which appears in the Hofmann record at pages 319 and 320. [fol. 337] The witness Groff produced photographs Nos.

2329 to 2333 inclusive, dated March 21, 1921, which were in evidence in the Hofmann case as Plaintiff's Exhibit 34, and I ask to have them marked in this case as Plaintiff's Exhibit 41.

(Marked Plaintiff's Exhibit 41.)

Mr. Shaw: The same witness also produced a photostatic index of the photographs taken by him and I offer it in this case as Plaintiff's Exhibit 42. It was Hofmann's Exhibit 36.

(Marked Plaintiff's Exhibit 42.)

Mr. Shaw: I offer the deposition of William J. Jackson, which appears in the Hofmann record at pages 320 to 337. During the deposition of Mr. Jackson certain letters between his firm and the Textile Machine Works and W. G. & D. M. Stewart were produced and offered in the Hofmann case as one exhibit, No. 38. I ask to have that marked in this case as Plaintiff's Exhibit 43.

(Marked Plaintiff's Exhibit 43.)

Mr. Shaw: I offer the testimony of Walter G. Stewart, which appears in the Hofmann record, pages 344 to 364. During the testimony of Mr. Stewart the certified copy of the abandoned application of Schletter, filed March 12, 1921, serial No. 451,785 was referred to and offered in evidence as Hofmann Exhibit 40. It is already in evidence in this case as Defendant's Exhibit A.

I offer in evidence a stocking blank produced by the wit- [fol. 338] ness Stewart. This stocking blank was Exhibit 41 in the Hofmann case, and I ask to have it marked in this case as Plaintiff's Exhibit 44.

(Marked Plaintiff's Exhibit 44.)

Mr. Shaw: Witness Stewart also produced a letter written by him to Mr. Schletter, dated July 28, 1924. This was Hofmann Exhibit 42, and I ask to have it marked in this case Exhibit 45.

(Marked Plaintiff's Exhibit 45.)

Mr. Shaw: A design patent No. 63,272 of November 13, 1923, was also referred to by the witness Stewart and was in the Hofmann case as Exhibit 49. I ask to have it marked in this case as Plaintiff's Exhibit 46.

(Marked Plaintiff's Exhibit 46.)

Mr. Shaw: If your Honor please, those are depositions that dealt with the defense of abandonment, and the question of date of invention of Schletter. The question of abandonment in the testimony of Jackson and Stewart shows that the original application was abandoned through a mistake in Mr. Stewart's office and that Mr. Schletter was not advised of it. As soon as he learned that the application had become abandoned, he directed, through Jackson, the filing of a new application which was taken up by Jackson and the application for the patent in suit was then filed.

On the question of the date of Schletter's invention the witness Stewart testified that Mr. Mayer of the Textile Machine Works brought Mr. Schletter to him I think it was on [fol. 339] February 11, 1921, the notation being written in the record from Mr. Stewart's diary and Mr. Stewart testified at that time the attachment and the stocking in which Mr. Schletter was interested were discussed. Mr. Stewart produced this stocking blank, now Plaintiff's Exhibit 44, and testified that that stocking blank was received at the date of the first conference and remained in his file up until the time it was produced at the trial in Trenton.

Alfred E. Ischinger, called as a witness on behalf of the plaintiff in rebuttal, being first duly sworn, testified as follows:

Direct examination.

By Mr. Shaw:

The Witness: My name is Alfred E. Ischinger; age, 36 years; residence, Mt. Penn, Pennsylvania, and during the last seven years I have been in charge of the patent department of the Textile Machine Works, the plaintiff in this case.

I visited the Brentmore Knitting Mills on November 3, 1931. I went there for the purpose of seeing an attachment which was on a so-called Reading type knitting machine located at this mill. I saw and examined that attachment, and had photographs made of it. That attachment was on a full-fashioned hosiery machine of the Reading make. I produce the photographs which I took at that time. These [fol. 340] are the seven photographs that were made of this attachment at the Brentmore Hosiery Mills at that time.

Mr. Shaw: Witness produces photographs 8222 to 8229 inclusive, dated November 3, 1931. I ask to have these photographs marked in evidence as Plaintiff's Exhibit 47.

(Marked Plaintiff's Exhibit 47.)

The Witness: These photographs were produced in the Hofmann trial. There have been no changes made in the photographs whatsoever, since that trial. There are certain notations of numerals in ink on the photographs. These are the same as they were in the Hofmann trial with one exception. That exception is as follows: In photograph numbers 8228 and 8229 the letter K has been substituted for the reference numeral 16. The reference numeral 16 has been crossed out on these photographs and the letter K substituted. The numerals on these photographs correspond with the reference numerals of the patent drawings in the Schletter patent here in suit. I will take those photographs and read into the record the various elements with the attachments shown therein. Referring to photograph 8222, the reversely-threaded spindle is marked 11. The nuts on the reversely-threaded portions of the spindle are marked 9. The spindle bearings are marked 12. The two ratchets for rotating the reversely-threaded spindle in opposite directions are marked 21 and 22 respectively, and there is also shown on this photograph a hand-operated mechanism for [fol. 341] turning the reversely-threaded spindle 11, and this mechanism includes an upper chain sprocket marked D, and also chain sprocket marked H and chain G and support for the upper chain sprocket marked F and a crank marked E for rotating the upper chain sprocket. There is also shown a spindle index wheel here marked C. This letter I might note does not correspond with the designation on the patent drawings of the Schletter patent. The part here marked C is marked 25^1 in Fig. 3 of the Schletter patent drawings. 25^1 in Fig. 3 of Schletter patent drawings. In addition there is also shown a mounting marked B in the photograph which mounting is provided for a spring pressed plunger that co-operates with the index wheel C and which plunger is marked 26^1 in Fig. 3 of the patent drawings.

I notice that the numeral 6 is applied in the photograph to the yarn carrier bars of the knitting machine.

In photograph 8223 there is shown the reversely-threaded spindle 11, the nuts 9, the spindle bearings 12, the thread

carrier bar 6, the hand operated mechanism for turning the spindle including the mounting for the upper sprocket wheel marked F, the upper sprocket wheel itself marked D. The crank handle for the upper sprocket wheel marked E, the sprocket chain marked G; the lower sprocket wheel H; the mounting for the spring pressed plunger that co-operates with the index wheel marked D, the index wheel C and the thread carrier bar 6.

Photograph 8224 shows the reversely-threaded spindle 11, the nuts 9; one of the ratchets 21; the spindle shaft 20, and [fol. 342] a lever 29a and a cam follower on the side of lever marked 31; also the hand operated mechanism including the mounting for the upper sprocket wheel F and the upper sprocket wheel D and the chain G; the lower sprocket wheel H and the crank handle E.

Q. May I interrupt, Mr. Ischinger, to suggest that if in the following photographs the same parts are shown and a letter correspondingly, that you just go through the remaining photographs and point out the parts not shown on those which you think you have so far described?

A. All the parts as pointed out are substantially shown in photograph 8225. Some of the parts previously mentioned are shown in photograph 8226.

Some of the parts are shown in photograph 8227. In this photograph there is also shown a number not previously mentioned, namely, a stop J for the lever 29a. There is also shown a concentric disc 35 on the cam shaft of the machine and a cam 35a.

In addition to this, I believe that the cam follower 31 was not previously mentioned which cam follower and cam 33 are connected with the lever 29a.

In photograph 8228 there is shown a hook-arm K which was not previously mentioned, also a lever 29.

The last photograph No. 8229 again shows the hook-on K and in this picture the hook-arm is clearly shown as connected to a lever 15 not previously mentioned.

Also cam 14, which cam 14 corresponds with cam 14 shown in the patent drawing.

[fol. 343] Q. Can you state from those last two photographs which you have examined, whether they show that the hook-on K to which you have referred is connected to the lever 15 of the patent?

A. Photograph 8229 clearly shows that the hook-arm is bifurcated at its lower end and is connected with the ends of the lever 15, which lever, as I previously mentioned, is the same lever as the one designated by the reference numeral 15 in the patent drawings.

Q. When you examined that patent attachment at Brentmore and took the photographs, it was apparent, wasn't it, that certain parts were not there?

A. Yes, sir.

Mr. Shaw: You may cross examine.

Cross-examination.

By Mr. Darby:

The Witness: I testified in the Hofmann case in connection with these photographs and the Brentmore machine. As to whether the time that I had gone to the Brentmore plant was approximately within six months of the date of the trial in that case, I will say that I do not recall off-hand just when the trial took place. When I stated in the Hofmann trial that I went to the Brentmore within the last six months to examine the attachment that was there, I believe I had reference to one of my first visits there. That was not the time that these photographs were made. The photographs were made subsequent to that time. They were made November 3, 1931. As to whether the machine was in inoperative condition when I arrived there, I will say that the knitting machine was operating but this attachment was not. It was not complete. As to whether the [fol. 344] mechanism, insofar as the actuating auxiliary chain 70 was missing, so that the attachment was in the same condition, so far as that mechanism was concerned, as is illustrated in the drawings of Fig. 1 and Fig. 2 of the abandoned Schletter application already in evidence, I will say that I do not know whether there were on that attachment at that time all the parts that are shown in this abandoned application. I do not recall seeing any parts which operated the chain 70.

These photographs are photographs which were taken of the machine in the condition as I found it. They only show the parts of the attachment as I found it.

Q. That was before you had added the necessary mechanism to actuate the chain 70 of the patent structure, is that right?

A. There was nothing added at the Brentmore Hosiery Mills whatsoever.

Q. You produced the machine as an exhibit in the Hofmann case, didn't you? The original attachment, in so far as it was original with parts added to it, is that correct?

A. Those parts were incorporated in the model.

Q. Did you or did you not instruct the mechanics at that plant to take the original attachments just as you got them at Brentmore and to make an operative structure from it by adding whatever was necessary, following strictly the disclosure of the patent?

A. I did.

Q. You did that.

Mr. Shaw: Just a moment, I object to that; it is not [fol. 345] proper cross examination. We did not mention the model produced in the Hofmann trial or any instructions after the photographs were taken.

Mr. Darby: If your Honor please, I beg for a little latitude in cross examination of this witness because it has a bearing on the workability of the machine.

The Court: But this witness was not asked anything about the Hofmann trial. Objection sustained.

Mr. Darby: May I note an exception.

The Court: Yes.

Q. May I ask this question: Did you take this original attachment that you saw in the Brentmore Mills and put it in operating condition?

Mr. Shaw: The same objection.

The Court: Objection sustained.

Mr. Darby: May I note an exception.

The Court: Yes.

The Witness: In the photographs that I have referred to, there is no apparatus or mechanism for actuating a chain corresponding to patent chain 70 marked main cam shaft on the device. In the machine as I found it and as illustrated in the photographs, there are no stops shown mounted on the reversely-threaded spindle.

Q. They are not. What became of that machine, I mean that original attachment as illustrated in the photographs?

Mr. Shaw: I object, your Honor, on the ground that it is [fol. 346] improper in view of the direct examination and it is immaterial and irrelevant.

The Court: Objection sustained.

Mr. Darby: I note an exception, if the Court please.

Q. May I ask the witness if he knows what became of the machine? If the plaintiff still has it in his possession?

Mr. Shaw: The same objection.

The Court: Sustained.

Mr. Darby: Exception.

Q. Have you had anything to do with the machine since the photographs which you have produced were taken?

Mr. Shaw: The same objection.

The Court: Sustained.

Mr. Darby: Exception.

The Witness: The hook-arm that I have marked K on the drawing; was on the machine as I found it, and when the photographers were taken.

Q. Will you point out on one of those photographs the chain which corresponds to the chain 70 of the patent?

A. I don't believe I referred to the chain 70.

Q. You referred to the patent, however, and the patent structure, and I am asking whether you can point out on the photograph the chain that corresponds to chain 70 of the patent?

A. The chain is not shown in these photographs.

Mr. Darby: That is all.

[fol. 347] Miss Mary Hargan, called as a witness on behalf of the plaintiff in rebuttal, being first duly sworn, testified as follows:

Direct examination.

By Mr. Shaw:

The Witness: My residence is 4933 North Front Street, Philadelphia, and I am a bookkeeper. I was at one time employed by the Brentmore Knitting Mills. I was employed there from 1915 until 1933. My position with the

Brentmore Knitting Mills was office manager. I was office manager during that entire period.

Mr. Richard Schletter was interested in the Brentmore Knitting Mills. He was our manufacturer; he took care of all the knitting machines and he was also interested in the corporation. By that I mean that he owned stock in the corporation. Mr. Schletter stayed with the Brentmore Knitting Mills from the organization in August, 1912 until July 1, 1922, that is ten years. At the time he left on July 1, 1922, he had sold his stock interests in the Brentmore.

The products manufactured by the Brentmore Knitting Mills were ladies' full-fashioned hosiery with cotton welt and sole and silk leg and calf. The products that were manufactured and sold were plain hosiery. As office manager, I would know whether any design stockings were actually sold by the Brentmore Knitting Mills while I was there. While I was there and Mr. Schletter was there, I recall his working on an attachment for making designs in hosiery. That was about the latter part of 1920 or the early part of 1921.

I fix that date by reason of the fact that the mill was not [fol. 348] operating at that time due to a strike. The union in Philadelphia was on a long strike.

I saw the attachment that he made. I saw it operating. I saw samples of stockings made on it. Mr. Schletter had one attachment at the Brentmore Mills for this particular business, that is design for hosiery. It was placed on a Reading full-fashioned knitting machine. All our machines were Reading full-fashioned machines. We had nothing else.

In my duties as office manager, I had occasion to go into the knitting rooms, I went into the knitting rooms at least once every day, sometimes several times. My duties as manager were such that I knew what materials were purchased by the mill. I did all the ordering of the goods used in the mill.

The attachment was paid for by the Brentmore Knitting Mills. I stated that I had seen certain stockings which Mr. Schletter manufactured on the attachment. I have seen the designs shown in the photographs, Plaintiff's Exhibit 41. I saw those stockings with those designs in the Brentmore Knitting Mills.

I stated that I had seen the attachment in operation. As to which of those photographs correspond to the stockings which I saw manufactured, I will say that when I saw the machine in operation, this zig-zag sort of effect like the design in Plaintiff's Exhibit 17 was on the machine. This was the design I saw being made. I saw the fabric coming off the machine and it happened it was this particular pattern, Plaintiff's Exhibit 17, that was being made when I was in the mill.

[fol. 349] Mr. Schletter was operating the machine.

I am asked what he did. He did everything necessary to turn the fabric off the machines. He was operating it.

I had seen from time to time the regular commercial stockings manufactured by the Brentmore Knitting Mills.

Q. How did the work with Mr. Schletter did in operating the machine with the attachment and making a stocking like Plaintiff's Exhibit 17, correspond to the way that the machines were operated in regular production?

A. It did not vary in any way that I could say, other than this designed fabric was being made instead of the plain fabric. The machine was operating under power. Every machine had an individual motor in it. When this Plaintiff's Exhibit 17 was manufactured, none of the operations were carried out by Mr. Schletter by hand.

I will describe briefly, the parts of the attachment that I remember were there on the machine. They were the spindle and nuts and a sort of hook that had been made by Mr. Schletter in the mill, or at least had been made in the mill.

I recall that Mr. Ischinger of the Textile Machine Works came to the mill and took photographs of the attachment. As to what was done with the attachment after Mr. Schletter severed his connection with the company in July of 1922, I will say that it was never used, but remained on the machine just as he had placed it until it was removed by the Textile Company. I am shown Plaintiff's Exhibit 47, which are the photographs introduced by the witness Ischinger, and am asked if I recognize the spindle and nuts [fol. 350] shown in the photograph No. 8,222. I do. Here is the spindle and here is the nut referring to No. 11 and referring to No. 9, I mentioned a hook which Mr. Schletter had made there in the machine shop, looking at photograph No. 8,227 I find the hook there. It is very plain.

Mr. Shaw: Referring to the unnumbered and unlettered hook.

The Witness: As to whether Mr. Schletter showed the attachment to anybody when he had it completed and before he left the mill, I will state that I could not say he showed it to anybody particularly. He asked me to come in and look at it and see what he could make with this particular attachment. I do remember the visit of Mr. Max Miller of the Textile Machine Works to the mill.

Mr. Shaw: You may cross examine.

Cross-examination.

By Mr. Darby:

The Witness: I was familiar in a general way with the operations of the operators in knitting hosiery. I have been the operators. I have seen them operate frequently. During the production of hosiery, they have a number of manual operations that they perform in operating the machines. They turn wheels here and there and take care of the thread carriers and the motor starting the mechanism. I have seen them perform a number of manual operations in the normal course of operating the machines. As to whether when I saw Mr. Schletter operate this machine, I saw him perform similar manual operations, I will say [fol. 351] that other than turning the machine on in starting it running, I did not see him do anything, because we were standing in a space between the machines that we call the alley,—he and I were standing in front of the machine, the machine started off and the fabric seemed to come off the machine and I did not see anything different than that.

When Mr. Schletter left the company in 1922, he left the machine there. I could not say whether when Mr. Ischinger came to see it in 1931, it was in exactly the same condition as Mr. Schletter left it in 1922. Between the time Mr. Schletter left in 1922 and at the time that Mr. Ischinger came in 1931, the attachment had not been operated. The machine ran in the usual way. The attachment had not been operated in that period of time. However, it was left right there on the machine in plain view, where anybody could see it that wanted to see it, that is right.

Mr. Darby: That is all, thank you.

OTTO HUBER, called as a witness on behalf of the plaintiff in rebuttal, being duly sworn, testified as follows:

Direct examination.

By Mr. Shaw:

The Witness: My age is 29 years; I am a hosiery knitter employed by the Rogers Hosiery Company, Philadelphia; my residence is 7174 North 19th Street, in Philadel-
[fol. 352] phia. I am a knitter working on the legger. I never worked on the footer.

I was at one time employed by the Brentmore Knitting Mills of Philadelphia. That was in July of 1920. I stayed there until March, 1922. Richard Schletter the manufacturer was in charge of production of the mill at that time. I recall that Mr. Schletter worked on an attachment for making designs on hosiery while I was there. That attachment was completed before I left. It was completed before the strike was over. As to the date, I could not say exactly, whether it was the latter part of 1920 or the early part of 1921. I personally had something to do with the attachment or putting it on the machine. I worked in the machine shop and my job was to help with the machine in various parts and place some of them on the machine. My father was working for Schletter at that time. He built the attachment. My father is not living now. I saw the attachment in operation. I saw the machine that it was placed on. It was placed on a Reading full-fashioned machine. I will state in a little more detail what I personally did with regard to putting the attachment on the machine.

There were various holes on the beams, in the front and back beams; I drilled out and tapped them with ratchet drills and attached them and helped with different parts in the machine shop, like drilling the holes,—just little jobs around that I could do. I will describe the mechanical parts of that attachment that Mr. Schletter had on his machine as I recollect them. It consisted mainly of the reversely-threaded spindle and two nuts. In those two nuts were two steel blocks—stops. There were bearings with held the
[fol. 353] spindle in the bracket and by which the whole attachment was fastened on the machine. There were two ratchets with teeth running in opposite directions. There were several clawkers and the index wheel, silent chain and

wheels in the hand crank; there were two pattern chains, one in the front of the machine and one in the back of the machine with various shafts, cams, and cam followers. The purpose of the pattern chains was as follows: As I recall it the front pattern chain determined the timing, and the back pattern chain determined which rocker or pawl operated to direct the movement of the nuts on the reversely-threaded spindle. I spoke about steel blocks or stops that were placed in the nuts on the spindle. This co-operated with the machine's operations automatically. They co-operated with the yarn carrier rods. There were stops on the carrier rods which hit up against the stops on the nuts which directed the pattern to be made in the stocking. I recall that the steel blocks or stops oscillated or rocked.

As to whether the various stockings that I said I saw manufactured employed the tilting or rocking stops, I will say that in some designs they rocked and in others they did not. It all depended on the particular design you were making.

As to what mechanism there was to stop the oscillating steel blocks from rocking, I will say that there were two hooks on the front of the machine and when you did not want the blocks to rock or oscillate, we took those two hooks and placed them up on the shaft in the front of the machine which lifted the cam follower off the cam and stopped the motion of those blocks.

I am shown Plaintiff's Exhibit 41. I have seen the [fol. 354] stockings shown there. I saw Mr. Schletter make them and that applies to the various ones in these photographs.

I have seen stockings like Plaintiff's Exhibit 17. That was manufactured at the time at Brentmore that I have been testifying about. I will describe how the machine was operated when a stocking like Plaintiff's Exhibit 17 was manufactured. There were three carriers used. The two outer carriers were black carriers there that moved from the end stops to the stops which were inserted in the nuts on the attachment and the center carrier worked between the stops on the attachment, and as the pattern chain determined which way the spindle should move, and the carriers naturally moved in the direction the ends moved in, forming the design. I could not say whether when that particular design was made whether the steel blocks or stops were

oscillating or not. I had no experience in what particular design was being made when the blocks were moving or when they were not. In the manufacture of stockings by this attachment the manual operations required were merely to put the attachment at the starting position and after that it worked entirely of its own accord, or automatically. The manufacture of stockings with that attachment on did not differ in any way from the operation of the knitting machines making the plain work.

I am shown Plaintiff's Exhibit 47. I can identify some of the parts shown in them. I see the bearings which held the spindle indicated here as No. 12 and the nuts, No. 9, the spindle 11, and the other bar 12; the ratchet and the index [fol. 355] wheel 22 and 21, and the hand crank E; the chain and the gear to which it was attached. The purpose of the hand crank was to bring the attachment back to the starting position after the stockings were finished.

Q. Do I understand your testimony to be that the steel blocks or the nuts held on steel blocks on the reversely-threaded spindle moved in and out automatically without any hand operation?

A. Yes.

Mr. Shaw: You may cross examine.

Cross-examination.

By Mr. Darby:

The Witness: I was about fourteen or fifteen years old when I went in the Brentmore Mills. I left the shop in March, 1922. I went with Mr. Schletter at that time. I was with Mr. Schletter until 1924. When Schletter left, he went in business for himself to manufacture stockings.

As to whether he had an attachment like the one that you have testified about in his new place while I was with him, I will say that while I was with him he was working on them. I could not say definitely whether he had one in operation. I saw them, I was helping to work on them, but I could not say that they were absolutely completed at the time I left. I still know Mr. Schletter. I have not seen him since I left there in 1924.

I am able to read a mechanical drawing to some extent. With respect to the mechanism that was on this attachment I saw in the Brentmore Mills, and particularly the

mechanism that was utilized for effecting ratching of the [fol. 356] selective chain, and I think I can read mechanical drawings sufficiently to say, if I saw a drawing whether or not that was the type of mechanism that was employed.

I am shown the drawing in evidence as Plaintiff's Exhibit 15, and my attention is called to the mechanism that is here shown for effecting ratching of the pawl 70, and I am asked whether that is the type of mechanism that was employed in the machine, I will say that it was similar to that. I could not say whether it was exactly the same mechanism, but there was a connection. There was some kind of connection.

My attention is called to the fact that on the rods which are used to rack the spindle there is provided a bracket with a lever B with a small part extending to the left of it, and I am asked whether a mechanism like that was employed. I say there was something similar; whether it was in that detail or not I could not state definitely. I could not say just exactly what the mechanism was. There was a connection, but what it was I could not say.

Mr. Darby: That is all.

CHRISTIAN F. MEYER, recalled by the plaintiff in rebuttal, having been previously duly sworn, further testified as follows:

Direct examination.

By Mr. Howson:

The Witness: I have already been sworn in this case. [fol. 357] I have examined the Cecka United States Patent 1,180,568 and understand it. This patent shows a device to provide means to make splicings between the selvages of a full-fashioned stocking, and splicings only. Nothing else can be made by the means of this attachment. The inventor himself mentions on page 1, beginning at line 15, that

"My invention relates to improvements in knitting frames and more particularly in apparatus for knitting in hosiery or the like patterns from reinforcing threads, and the object of the improvement is to provide an apparatus of this class by means of which reinforced portions can be

knit in the intermediate part of the fabric as distinguished from end frames by means of which reinforced portions can be knit only at the side. Thereby I am enabled to produce patterns of various forms and the effect of such reinforced portions can be increased by knitting the same from threads of a color different from that of the foundation."

Now this mechanism that is shown for that purpose consists of two carrier rods which are making these reinforcements. There are provided two rods which are meshing a small pinion 11 as shown in Fig. 11. Now it is clear that this pinion is to bear the full blow of the carrier rod when it comes to a sudden stop on the outline of the design. Now since in the full-fashioned knitting machines these carrier rods are very long and comparatively heavy, and since the [fol. 358] velocity of these carrier rods is considerable, it is clear that quite a hammerlike blow will be exerted every time when such a rod is brought to a sudden stop.

Now in the construction shown here in my opinion it is pretty obvious that that small pinion there, if it is to withstand such a succession of blows, continuously, will not last very long. In fact, it cannot. The device is, therefore, in my opinion, not practical and has, to my knowledge, never been in the market and has never been used.

These defects to which I refer, the flimsy character and so forth, are inherent in the character of the structure. They are the direct effect of the construction here.

Mr. Miller stated with reference to this patent that it was adapted for the making of inserts. That cannot be correct, for the simple reason that only two carrier rods are provided; that is, two carrier rods are driven by the friction boxes 6 and 7 respectively, and these friction boxes are stopped at the one end by the movable rack and on the other end by the standard end stops of the machine.

Now, if these two friction boxes would be employed for the making of inserts or split work, there would be no carrier rod left to do the rest of the fabric; that is, to do the end pieces or the center between the designs because these are the only two places provided in that patent to stop carrier rods at part of their stroke and when these two carrier rods, as I say, are so employed for the making of inserts there are no stopping places, no controls left to have any other [fol. 359] carrier rod make the remaining part of the inserts, either the center piece or the two end pieces.

The work shown appears to be spliced for reinforcing designs away from the selvage. The attachment is not adapted to make reinforced designs at the selvage. There is no reversely-threaded spindle shown in the patent or suggested. There is no spindle at all. There is a device or mechanism shown for operating the attachment automatically. There is part of such apparatus shown, namely, some pawls which can turn the attachment either to the right or to the left, thereby moving the racks toward or away from each other, or rather left or right, and these spindles are connected to two rods 30 and 31, and a cross bar. Then the specification says that some mechanism, some jacquard mechanism or some other mechanism is controlling the shaft rods to move either the one or the other of these pawls, but nothing of such mechanism is shown or described with the exception that it mentions in general some mechanism. I have never known of this device being on the market. The patent appears to have been assigned on its face to Schubert & Salzer. I know that concern. To my knowledge their standing and position in the knitting machine building industry is a very good one.

In the companion patent to Cecka No. 1,217,411 the same criticism which I have made of the structure of the device in the Cecka patent that I have just considered applies in the same way and for the same reasons to the device shown in this Cecka patent. This device is in all essential par- [fol. 360] ticulars exactly the same construction as the previous patent and the same criticism applies, therefore. By this attachment we could make splicing, reinforcing designs along the selvage of a stocking or a piece of fabric, as illustrated, for example, in Fig. 1. Those designs running in opposite directions include lines running in opposite directions. The inventor also refers in his application, on page 1, beginning at line 17:

"When making reinforced portions in knitted goods on flat hosiery frames the inward stroke of the thread guide is limited by means of fixed stops which correspond to the desired breadth of the reinforced portion. By means of such a mechanism only reinforced portions can be made which have straight border lines, while it is not possible to make fancy reinforced portions.

"In my co-pending application, Serial No. 852,417, I have shown and described a mechanism by means of which fancy

reinforced portions can be made such mechanisms consisting in a pair of stop members each adapted to arrest either one of a pair of thread guides and formed on adjacent sides with rack teeth, a pinion arranged between said stop members engaging in the teeth of the racks so as to shift the stop members in opposite directions upon being operated by a pawl and ratchet mechanism. However with the mechanism described in the said application only such reinforced portions [fol. 361] can be made in knitted goods which are of equal breadth all over. In order to be able to gradually increase the reinforced portions to any desired point and to reduce them thereafter and, if desired, increase them again, the mechanism disclosed in said application has to undergo a certain change which shall hereinafter be explained."

This attachment is designed and adapted to produce a particular type of selvage reinforcement, and refers to another patent also designed to produce a particular type of selvage reinforcement differing somewhat in character.

The other Cecka patent that I first referred to is first designed and adapted, not to produce selvage reinforcement, but to produce reinforced designs between the selvages exclusively. None of these attachments are adapted to produce split seam or insert work.

With all three of the devices by Cecka at this time they could produce only a part of the character of designs, all of which are capable of being made by the attachment of the patent in suit.

I am familiar with the Albert Gee patent. I will state what character of work that is designed to produce, and briefly, how it does it.

This attachment also makes spliced or reinforced designs on the top of some body fabric of some kind, but it is very limited in its scope, for it can only make such a design which is determined by the steel pattern pieces V shown in Fig. 1. The steps shown in that part are the determining factor in the relative position of the carrier, and it is therefore clear [fol. 362] that to make any other design, that particular part would have to be replaced by a part corresponding in its outline and in the formation of these steps to the pattern which it is desired to make. It is easy to understand that this is a very costly and inconvenient way of making such designs.

Now, in order to make this device operate, there is a ratchet which is racked tooth by tooth by means of a suitable pawling mechanism shown on the bottom of Fig. 2 and which is rigidly fastened to a cam shaft 10. This cam shaft bears a cam A-9; the turning of this cam imparts motion to a roller A-H, and a cam lever A-C fulcrum at A-5. The arm A-4 extending to the left from this fulcrum is swinging upward and downward according to the outline of the cam to meet or engage or stop one of those steps which are clearly shown in B at Fig. 1. The outline of this cam therefore determines the rotation in which these particular steps are to be stopped, and these steps being fastened to the carrier rods, they in turn stop the carrier at the desired place. That entire construction also is in my opinion not a very desirable one. I saw this work myself in the mill where Gee was employed, and he was of the same opinion.

The patent appears to have come out in 1912; so far as I know, the device did go into use to a certain extent, by the inventor himself. It was the Hancock Mill in Philadelphia. In that mill they have Reading and foreign machines. Whether in those machines any attachments are in use now for doing design work, I will say that I have not been in the mill in a very long time; the only thing I know is that the [fol. 363] Hancock Mill bought quite a few Schletter attachments of the patent in suit from us. This attachment of the Gee patent is not adapted for split seam work. It is not adapted for that for the same reason, because there is only one step provided and only one carrier rod has room there to be stopped on either side, therefore, there is no more room for other controlled carrier rods to make any split designs. In split designs of that nature you have to have at least the possibility of controlling five carrier rods, one to make the fabric between the designs; two to make the designs themselves and two to make the portion from the design to the outer edge and selvage. With respect to reinforcement or splicing work at the selvage; this attachment as shown and described is adapted for that. At the selvage it could be done. It would be merely necessary to employ one carrier rod against the end stop and the other carrier rod against this particular stop B shown in Fig. 1. But there is nothing said in the patent about that. That is not mentioned. It is just generally said that it is for variable ornamental hosiery in the introduction there. There is no automatic reverse motion

in this patent. The difference in the form of the design is caused by the rotation of the cam and the varying outline of that cam, of course, furnishes the means to step up the particular stop that is wanted. There is no reversely-threaded spindle. There is nothing corresponding to the operation of the reversely-threaded spindle in two directions.

Referring to the Landenberger patent No. 1,134,749, I will state with reference to the construction and operation [fol. 364] of that device as shown in the patent as follows:

That is what is known in the art as a drum type attachment and it is operated by two discs or drums which are marked in this drawing 19 and 20. They are all of circular form and on the outer side—I mean the side away from the center of the machine, a number of pins are provided; 56 they are numbered in the patent drawing. The carrier rods, or in this case, rather, the carrier rod driver, strikes against those pins, bringing the carrier rods to a stop in that way.

During the operation of the machine to obtain a design, there is a pawling mechanism provided which gives a step by step movement to these discs, thereby bringing one pin after the other before the stop of the carrier rods. That is perhaps best seen in Fig. No. 2 at the extreme left end of the drawing, and the driver 47 sliding on a round bar marked 16 has an extended arm on the left end of this rod 16—left side of this rod 16, and a stop screw on that arm strikes against the pin on the pattern wheel or pattern drum, which is very clearly shown there.

Then, the driver is provided with a slide. One can see the handles to move these slides outward or inward, to either connect or disconnect the carrier rods 40-A, 41-A, 42-A and so on, shown at the extreme right end of these s-ides.

Now, this is almost the same in principle as the two patents just described. The difference is that in this case, for changing the design, it is not necessary to supply an entire new pattern piece, but the height of the pins determines the shape of the design and by replacing pins with different heights, [fol. 365] the design can be changed. However, it is very difficult to do that also, because these pins must be very accurate, it being necessary, as we have had explained before, that the carrier stops exactly over a divider and it may not stop over what is called the sinker, for the simple reason that the fine tube in the front of the carrier extends beneath

the sinker for reasons which were also explained, so that it must stop over the divider, which is correspondingly lower. Now, in a fine gauged machine, where we have thirty or more such dividers per inch, that is a matter of extreme accuracy to stop the carrier just at that particular point, and therefore, it follows that the height of these pins is of very great importance. They must be very correct, and to make this height so exact, of course, is again a costly matter, and when several of these pins or all of these pins are to be exchanged, it is pretty expensive.

Then, there is another thing, these drum type attachments are very limited in their capacity,—not in their design capacity as far as the shape of the design is concerned, but as far as the length of the design is concerned. Naturally the circumference or circle on which these pins are placed is the limit of such length of design that can be laid. Of course, when that is full of pins you cannot put any more on. It might be said that this circle could be increased in diameter in order to create the possibility of putting more of such pins on the circle, but that has the disadvantage that when the circle of pins grows too large in diameter, the leverage is increased from the axle or from the center of this drum [fol. 366] to the periphery or to the circle of pins and that is naturally a very bad thing, because as I said before, these pins have to bear the brunt of the blow of these carrier rods constantly, and it will take not very long to have them come loose and get inaccurate, and develop such defects in the stockings that they have to be either repaired or taken out. I am personally familiar with the Landenberger drum attachment as actually used. I saw them continuously. They were pretty universally used before 1927 or 1928. Up to that time they were almost universally used. They were used particularly for one particular thing at that time. That was to produce the pointex heel, which is a one-way selvage reinforcement design in one direction, and is illustrated as such in the patent. It shows no other design. To my own knowledge those Landenberger attachments are used today to a very limited extent. The Schletter attachment—the attachment in suit must have taken its place because it is established that these attachments have been sold to the number of about 15,000, and that is about the entire number of machines in the United States.

Mr. Miller makes this statement with reference to this drum attachment of Landenberger:

"Q. So far as the designs are concerned, could you make any design with the Landenberger attachment that can be made with the attachment that the plaintiff company sells, assertedly under the patent in suit?

A. Oh, yes. * * *"

With reference to that, I will say that for the same reason which I have explained before, there is only one pin [fol. 367] on each side and, therefore, only two carrier rods can be controlled.

If we look at the patent again at Fig. 2 of the patent, there it shows very clearly that the driver 47, with its extended arm to the left, can only strike one pin, no more, and there is no more room for any other carrier rod nor is there any provision made for it. That same thing applies on the opposite side. Therefore, only two carrier rods can be controlled by the use of this attachment, and unless it is entirely rebulit, it is an impossibility to make any other design,—except one thing, I could use opposed stops or opposed abutments on one carrier rod and use either side of the stops, and then make a design between the selvage, some spliced design, but nothing else.

Mr. Miller testified in connection with some suit or other that he utilized Landenberger drums to make stockings of the character shown in Defendant's Exhibit O and Defendant's Exhibit P. With respect to that I will say that I saw them. If you would have substituted "drums" for "attachments" I believe it would be true. If he used more than one attachment, of course, he could have done it, but in one attachment as it is shown here, it could not be done. With at least two attachments, it could be done. In Defendant's Exhibit O and also in Defendant's Exhibit P, unless he had a Landenberger attachment which he changed or rebuilt in some form, but that, of course, I am unable to say.

With reference to Patent No. 1,644,688, to Osterreich, October 11, 1897, and I will state what type of device that [fol. 368] patent shows and describes.

The Osterreich device is also a drum attachment similar to the Landenberger device, but instead of one row of pins, the pattern drums are provided with two circles of fashioning pins.

All the objections which are mentioned with regard to the drum attachment are also present in this case. If anything, the accuracy here must be considerably greater because these two circles of pattern pins must work together; the carriers controlled by them, the way it is shown by the patent, are at a dividing line and, therefore, these co-operating pins in relation to each other must be very accurate in order to get the proper working of the machine.

This attachment has greater design possibilities than the Landenberger patent for the simple reason that there is an additional row of pins which can be utilized to control two more carrier rods, in addition to the two which one can use in connection with the Landenberger patent. But even with that increase in design possibilities the patent cannot make everything that the Schletter patent can. There are still limitations which, if I may, I can point out on some drawings which I have prepared for that purpose.

I have here a set of drawings, showing side by side the Schletter and Osterreich structure.

Now, bearing in mind that Oesterreich controls four carriers and that is the limit of his control, whereas Schletter can control as many carriers as there are carrier rods in the machine. A design like this, for instance, having this pink center portion, Oesterreich could make by employing one [fol. 369] row of his pins with the post abutments on either side.

This blue design he could make by the employment of the other carrier marked blue, and the yellow naturally by this here (indicating), but then he would be done. In that particular stocking, if he wanted to make even a pointed heel, he could not do it. He had no more control for it except this design is so short that he has still enough room left on his drum to do that, but if the design gets so long that the circumference of his drum is taken up with fashioning pins, then, he cannot do it any more.

Here is a similar design he would have for the blue shadow clocks where he would have to employ the blue; for the pink ones he would have to employ the pink and this one would be left; there would be no way of doing it in his attachment as it is shown in the patent. Schletter, of course, has always sufficient number of carrier rods available to do that. He can employ any one of his carrier rods to make any design that he wishes.

Here is a third one, that is on the same order. There are quite a number of designs and figures which the Osterreich device cannot make, whereas Schletter is in position to make them without any alteration of his device as it is.

Mr. Howson: I offer in evidence the three drawings just referred to by the witness as Plaintiff's Exhibits 48, 49 and 50.

(Marked Plaintiff's Exhibits 48, 49 and 50.)

[fol. 370] I personally knew this Edward Osterreich, who took out this patent. He is dead. These Oesterreich devices did not actually go on sale in the United States market.

I will now refer to the Schletter patent, 1,198,482. That also appears to be some kind of a drum device. I will state very briefly how that operates. It is almost exactly the same as—in fact in principle it is exactly the same as the Gee patent. There is a drum there which is driven by a pawling mechanism and which has a number of pattern clocks or pieces or whatever one wants to call it, which are utilized as stops for the carrier rods and in this way control the stroke of the carrier rod in accordance with a design exactly like the Gee patent, the only difference being that on this pattern drum 17 and those pieces 19, 21 and so on, are set in. They are not one solid drum, which would make it a little cheaper to replace the pattern at least, because it would not be necessary to make an entirely new pattern drum. It would only be required to replace these different insets in order to change the outline of the design. This device is adapted, let me say, to any type of work which does not need more than the control of two carrier rods in a stroke less than full width of the fabric being made at the time. That means that you can make a design at the selvage or you could make one between the selvages, but only a splicing design, nothing else. As to whether this device has any automatic reverse or whether it is operated all one way, I will say that it is operated by a pawl in one direction and the shape of the steps gives the [fol. 371] shape automatically. As to whether Mr. Schletter ever put this device on the market, I will say I know he did not. He used that in his own mill.

I will now refer to the Rowlett U. S. Patent 500,953. This is a so-called Lamb machine with two parallel needle beds. The main purpose of this invention is that work

may be produced without holes being left in the work. The inventor speaks of that at page 1, line 33, where I quote:

"The main object of my invention is so to construct such machines that fashioned work may be automatically produced upon them without holes being left in the work at the points where the widenings are made. Whenever a widening is to be made, a new needle is brought up into working position at the end of one row or the other of needles previously in work. In order that a hole may not be produced in the work by the bringing in of this needle, I, according to my invention, cause the last sinker loop of the work on the opposite row of needles to be stretched or placed automatically on this needle before any work is made upon it. I do this by making one of the needle beds capable of being shifted endwise to and fro a short distance and by then causing the needle which is to be brought into work to come forward and take the loop at the proper time."

[fol. 372] That is the purpose of the invention. Now this machine has driving shaft Z on sheet 2, Fig. 1, the pin Z^1 and the connecting rod Z^2 and the lever Z^3 are all together governing the reciprocating motion to frame Q on sheet 1, Fig. 1. A is the front needle bed and A^1 is the back needle bed. That is shown on sheet 4, Fig. 2 and sheet 5, Fig. 3.

The sheet 5, Fig. 3 is also the thread carrier G. The bolt H on sheet 5, Fig. 3 is raised by inclines G which is shown on Sheet 6, Fig. 3a. These inclines are fastened to slides G^{10}. All the parts marked K are for shogging back needle bed A^1, but they are immaterial to the parts of this machine that are of interest as far as the patent here is concerned. M shown on sheet 11, Fig. 6 and sheet 7, Fig. 4 is a sprocket wheel with a pattern chain which controls several movements. The thread-carrier G is carried by arm G^8 over a slide G.x, which can be moved along the fixed bar G^9. All this is shown best in sheet 5, Fig. 3.

On the bar G^9 there are also two slides, G^{10} which have an incline. These slides can be moved toward or away from each other by screws G^{12} on concentric axis. That is on sheet 3, Fig. 2. One screw acts on one slide G^{10} and the other on the other slide of the machine. Each screw is provided with two ratchet wheels, the teeth of which are cut in opposite directions. The pawls for driving these wheels are carried by four levers F, turning on the fulcrum

F^2. The other ends of the levers have pins connected to it which are working on jacquard cards.

[fol. 373] Now the moving or the lifting of this jacquard is to control these pawls and does it in such a way that the other end of these levers, as shown in sheet 10, Fig. 5, will be raised against a flat surface and the pawl will thus be swung out of the way where there is no hole in the jacquard card to meet the pin F^1 on the right hand of these levers. If there is a hole, however, then this arm is raised, the pawl is released and turns the sprocket wheel. There are four pawls to revolve each spindle in both directions by the means of this jacquard.

In this machine to my way of looking at it, in the first place it is not a Cotton machine. It is an independent needle machine, and the conditions of the problems are entirely different from what Schletter had to confront when he made his attachments for a Cotton machine.

In the first place, a Cotton machine, as I mentioned before, has these long heavy carrier rods, of great velocity which strike every stop with a considerable force like a heavy hammer blow. In the second place he has a number of carriers, 20, 24, 28, although on each one of these carrier rods, each one of those carriers must be in a very exact position as I have explained. There may be no rebound or anything like that. It must be just accurate. In the first place because it is necessary for the machine, and secondly, it would, in the fine stockings which are mentioned here repeatedly, the fashioning of them, give them a ragged outline. It would not give a clear design, and that is, of course, not desirable, and in fact it is not salable.

Then Schletter has the friction boxes to contend with to [fol. 374] drive his carrier rods. All that is obviously different from a machine where all that is to be controlled is a little incline which releases the carrier from its driver and leaves the carrier so to speak to itself. That absolutely cannot be compared to the problems that Schletter, as I say, had before him which were of such a different nature that I, in my mind, cannot see at all how anybody can compare them.

This patent we are speaking of is a so-called patent on an independent needle machine. Therefore there are in that machine no reciprocating carrier bars, which is characteristic of the Cotton machine. In place of that there is

simply a single carrier, or a carrier which runs on a stationary bar. The bar is stationary and that slides on it. In the controlling of the stroke of that carrier all that is required is to place by appropriate mechanism in the path of that carrier a light piece of mechanism, incline or something which will shove it away from the thing that moves it and cause it to stop. If I remember rightly in one of the other patents it was merely shown, on that account, this disengaging and engaging of a carrier of that nature. I may come back to that again.

The problem of controlling by stops these reciprocating bars in this many sectioned Cotton machine is quite a different problem from attempting to control the movable carrier off that incline.

I will explain what the independent needle machine is as distinguished from the Cotton machine. Very briefly, an independent needle machine is a machine, as the name [fol. 375] implies, where the needles work one way independently from each other, not, as I must say, as the Cotton machine does. That is, in the Cotton machine the thread is fed the full length of the section and then the entire section comes down and over the entire width of that section and makes the same number of laps at the same time.

The Court: They move in unison.

The Witness: That is right. Whereas in the independent machine they work one by one forming the loop as they rob from the carrier, being operated by a series of cams. The regular knitting cams which are probably well and generally known.

As to whether with respect to those two machines, the Cotton machine and the independent needle machine, are recognized as being different in type or not, I will not say that the entire construction of the machines is different and I believe I can best explain that if I take those particular parts which differ as these various patents come along. I intended to show that.

In this particular patent, coming back to this Rowlett patent, that machine is not at all adapted to do any design work. That machine is not built for design work. The entire purpose of this control of these inclines is merely to reduce the stocking in width.

The splicing or reinforcing thread must not necessarily run the entire width of the fabric, but if I remember right,

it was said there were two carriers on this, other than a splicing carrier, and a main carrier. That is true in a sense. [fol. 376] If we look at the drawing on sheet 9, there is the main carrier shown at G. About the central part, the middle part of that G, it is marked G^1, and another thread can be seen. There are two threads. And that thread is a splicing thread that passes through there. So it is perhaps a little far-fetched to say there are two carriers. It is one and the same carrier and these two are combined.

Now when the splicing thread is to be put out of action, as long as it works it can of course only work for the same distance as the main carrier works,—when it is to be stopped then this little arm G^7 is, by suitable mechanism, G^6, depressed so that it slides over this little spring G^1 which is marked there, and through which this splicing thread passes. It presses spring down and cuts off the splicing thread and that is the way the splicing is stopped. Whenever splicing is to be done it has to be pulled out again and started. No design in any way or form can be made by this machine. It is not provided for or it is not an attachment.

When I say that it is not an attachment, I mean that the parts that I have been describing are the actual machine itself and not something to be used.

I will refer to the patent to Lieberknecht, that is United States Patent 981,663, and I will state what that device really is.

This patent granted to Lieberknecht is not an attachment at all, but it is an essential part of the full-fashioned machine. It is the part that is employed serving as the regular end stops of the carrier rods only that it is placed away [fol. 377] from the ends of the machine towards the center of the machine as was demonstrated with all these spindles, and one of them was showing this particular arrangement.

Now the object of this patent has nothing to do with controlling the carrier rods for the purpose expressed in Schletter's patent. Its sole object is to relieve, or if possible, the total elimination of the blow which is exerted by the carrier rod. And the stop which terminates this blow in its travel, generally that is known in the trade as a shock absorber. This is done by means of the reversely-threaded spindle upon which are mounted the end stops 23 and 24. Now the sides of these stops are sliding upon a guide shaft

22, and each one of those stops has an auxiliary slide movable in the direction of the movement of the carrier rod.

This slide is provided with a pin 60 as shown in Fig. 2. The pin 60 which it turns, slides in a curved groove of two horizontal slides 57 and 58 respectively. The motion of these slides is at right angles to the motion of the slides 52. Slides 52 are in the horizontal and these in the vertical direction. Sildes 57 and 58 are operated from a cam bar 67 down at the bottom of Fig. 2, which is provided with cam pieces 65 and 67 and which participate in the regular reciprocating motion of the machine. One end of spindle 25 is provided with a hand crank 28 while the other has a ratchet wheel 29 which is operated by well known means in one direction only.

Now the moving of the parts 63 and 61, with their rollers, on the cam pieces 65 and 67, when the bar on which these [fol. 378] pieces are mounted reciprocates, moves the slide upwards and the horizontal moves the slide sideways in accordance with the curve which is clearly shown in Fig. 2, marked 59, and this movement is in such a way that these horizontal slides are moving with the carrier rod when it approaches only very much slower, but as soon as the carrier rod comes into contact with the slides, then the shape of this curve reduces the motion so that when the carrier rods are at the end of their stroke the shape of this curve and the pins moving in them have practically absorbed the blow of that carrier rod. This, is really directed not particularly to the idea of putting stops in the center inside of the end stops, but it is a sort of a refinement of that. It is a shock absorber.

I will explain briefly to the Court how it is that a pair of stops at the center can take the place of the end stops. The end stops, stop the reciprocating bars at the ends. That is, they make a barrier. In substituting, as Lieberknecht illustrates in this patent, two stops here instead of the end stops, they do that by simply putting a pair of suitable abutments on the carrier rod and use them in the same way that opposed stops are being used only far enough so that they make a full stroke of the fabric. That dispenses with the end stops.

This patent hasn't anything to do with providing supplementary stops or auxiliary stops for the purpose of design. This is the regular end stop of the machine. Of course, the

end stop is perhaps not the right name, but it is in place of the end stop. It is the regular control for the full travel [fol. 379] carrier bars; in order to be able to make anything an additional attachment would have to be put on the machine.

As a matter of fact in the defendant's machines employing the infringing attachment in the Hofmann case, the machines actually employed these central stops; this type of end stop, and in addition to that had the infringing attachment also. The Hofmann machine always employed that type of stop.

I will now refer to the Kilburn patent, United States patent 19,370. That is not a Cotton machine. That is a machine in which the needles move not together, but move individually. They are not latch needles on this particular machine. There are no reciprocating carrier bars.

I will explain briefly what this device of this patent is, and what it does. This invention is a carriage in which the needles and sinkers and so on are mounted, and which is caused to travel to and fro upon stationary ways.

Then there is a second carriage which supports the thread guide. Normally the needles are moving, and the thread is fed to the moving needles until adjustable bumpers which are shown in Fig. 3, *j*, until these bumpers take the carrier slide along in that by stopping the feeding of the thread. In other words, the needle is moving and the thread is stationary, and at the moment when that feeding of the thread is to be stopped, the carriage through which the thread is feeding is also going along, and of course they go right together and the feeding stops there. *j* is this thread guide and in Fig. 4 is sliding upon H. The front side of that carriage has two snugs I and O which are alternately struck by bumpers [fol. 380] K and M which are carried along by the needle carriage D. This is in Fig. 3. K and M are the bumpers. These bumpers are mounted upon a traverse bar N supported in these little standards *j* which are shown in Fig. 3. This secures the sinker bed to the needle carriage. Bumper K is adjustable and can be sent along by the bar N by hand and fastened in any desired position by means of a little set-screw *n* which is marked Fig. 3. Bumper M is similarly sliding upon N, the other bumper on the left hand side, but is controlled by the nut *m* which is screwed to it. Nut *m* is working on a screw L. Mounted directly underneath the

bumpers in brackets K. This is Fig. 5. The shank of this screw L has a collar P with a notch to receive a spring pawl W. The purpose of this is to secure spindle L in any position after it has been set by hand.

In that way the fabric is narrowed or widened at one side only.

On page 4, column 4 of the specifications in the second paragraph, column 1, about in the middle of the column, not quite, the present machine is adapted to the widening of the work at one side only, but by constructing the traverse bar N in the form of a screw like the lower screw and causing it to act upon a nut in the second bumper K, the thread guide may be operated to widen the work at either side.

But there is nothing like that shown anywhere in the patent. It is merely a thought expressed in the specification. This machine, as I said, is an independent needle machine and the effect of this whole thing is about the same as the [fol. 381] narrowing machine in the full-fashioned machine. It is merely there to widen the fabric which is being used in the machine. The only difference is that in a Cotton machine such widening or narrowing is done by the transfer of loops, and here it is done by stopping the feeding of the thread at the desired places. This does not have anything to do with the making of designs by the use of supplementary attachments. No design whatsoever can be made.

This device that I have been describing as shown in this patent could not be referred to as an attachment for a machine. That is the machine. None of Schletter's work can be done.

I will now refer to the Sowter United States patent No. 478,527, July 5, 1892 and will state briefly what that patent illustrates so far as is relevant to this controversy. This is a Cotton machine, and the principal object of that invention is to make a provision in the machine merely for narrowing; that is, to make so-called gores or sags in ladies' garments or other garments where such gores are desired, but nothing at all is said in this patent about controlling the carrier rods. This machine is, according to the patent, to make underwear.

It has two separate groups of narrowing fingers, one to make the narrowings at the selvage and then an additional one to make the transfer of loops from the selvage in order to make narrowing similar to the ones which are shown in Fig. 1 of this patent, Fig 3 indicating the narrowings at

the selvage while 2 indicates such narrowings away from [fol. 382] the selvage. For that purpose this patent has two sets of narrowing fingers which are shown in Fig. 4.

The Court: What patent are you talking about?

The Witness: Sowter 478,527.

Mr. Darby: I was wondering whether the witness was referring to the British copy.

The Court: That is what I was wondering. He is referring to a figure not part of this patent.

Mr. Darby: Have you been looking at a drawing in the corresponding British patent to Sowter?

The Court: I think he has.

The Witness: That is possible.

Mr. Howson: That is referred to in the United States patent.

The Court: The figure he is talking about is not part of this patent.

Mr. Howson: Yes. That is the British patent to Sowter.

By Mr. Howson:

Q. Do you wish to produce a copy of the British patent?

A. I have it here.

Q. And the British patent is referred to in the United States patent?

A. It is referred to, yes.

Q. And contains this sheet which shows the garment?

A. It does.

Q. All right. If you will just finish.

Mr. Darby: I have no objection to your going ahead with that explanation.

[fol. 383] The Witness (Continuing): There are two spindles. Now A is the spindle working selvage points by means of nut B. By selvage points I mean the points near the selvage. There is a ratchet wheel C and pawls E and F. Spindle L with its nut M is located above A in the same brackets H, and is operated by ratchet wheels N, O, P and Q. These last two wheels are turned by extensions R and S, all in that same drawing attached to P and Q respectively. N and O are operated by pawls T and U by a cam and lever Y, shown in Fig. 2 and Fig. 1.

The axle of cam G—this figure 3—the lower cam carries a cam V and that cam is provided with an odd number of

faces. That is shown in Fig. 2 again. Cam V in this particular case has five flat faces, and a ratchet wheel which has twice as many teeth as this cam V has faces. Now each end of the machine—there are in addition to the regular narrowing points B a wide set of points C in Fig. 4, which is clearly shown there. There are small points B and the wide points C. These points are screwed to each other by screws D. These are all small letters—so that both can be moved as one piece, and as one is moved the other one goes along with it. By means of lever Y, a pawl X and the cam V is turned automatically and alternates pawl T and U for operation after pawls C and R moving B and M one needle outward have turned A and L by means of ratchet wheels P and C.

In other words, although this is in a sense an automatic operation it is the same reciprocating automatic operation which we have in the narrowing motion of the full-fashioned [fol. 384] machine. That is the one pawl turns the spindles in one direction in a number of teeth and the other pawl which is controlled by the five-faced cams turns it a certain number of needles, one or two, whatever the setting may be, in the opposite direction, and that is the entire scope of the automatic operation. I mean that must be repeated as long as the machine makes its narrowing and that is done, that is, the automatic part of it I mean is done by the cam V. The ratchet has twice as many teeth as the cam has faces, so that always one high point is at the one pawl while the flat side is on the other pawl. The next time that will be just the reverse. The pawl on the left which is shown thrown out now will be thrown in and the pawl on the right will be thrown out and so it alternates until the design, or rather the narrowing, is finished. And it is in all respects the same thing as the controlled narrowing motion of the full fashioned machine with the one exception that these two sets of narrowing fingers, one to make these gores on the inside of the fabric and the other——

The two sets being connected together work like one. It has nothing to do with the control of carriers. It is not even mentioned in the patent.

Such reverse motion as there is is only for chains at regularly repeated intervals, and the only means for that is this cam. There is no reversely-threaded spindle to it.

The patent has no reference whatsoever to design work. There is no carrier control at all. There are co-operating carrier rods. There are in the machine but it is not re- [fol. 385] ferred to in the patent. The Cotton machine of course has cooperating carriers. The change from widening to narrowing is accomplished by hand. That is a hand operation, the machine keeps on narrowing until the position of the lever is changed by hand.

I will now refer to United States Patent to Zwicky, No. 1,608,285. That patent covers a device which was put out by my company.

As the name of the patent implies, the title "Loop Regulating Mechanism," that is exactly what it is. It is a loop regulating mechanism which was made long before we brought out the Schletter attachment with the idea of regulating the width of the loops, or widening of loops in the reinforced portion of the Landenberger stockings. Landenberger stockings are the stockings with the heel reinforcement in the form of a triangle which were repeatedly discussed here and it is necessary, as was explained several times, for such reinforcement to make the loops wider, and since this change had to be done on an inclined line, some provision would have to be made to provide for that, and this is the attachment which was made for that. It simply consists of a reversely-threaded spindle with two nuts on it which are connected to rods 81, 82, and these rods are led to a device located in the center of the machine, a rocking device, and are fastened there to two cam pieces; two little cam pieces moving those cam pieces back and forth. This rocking device was constructed in such a way that when the reciprocating motion of the machine through bar 40 was operating it would press out these cam pieces as corre- [fol. 386] sponding abutments on that bar would pass them. Now by means of this spindle the position of these cam pieces was altered, or the length of the cam pieces to which the bar was exposed was altered, made shorter or longer, whatever the case was, and the rocking was correspondingly for longer or shorter stretch of loop formation. This attachment was, as I said before, used with the Landenberger stocking and was therefore only operated in one direction. It had to be racked back by hand. It was not made for the control of any carrier rods or any other work but the work I have just outlined here.

I will now turn to the Lieberknecht German Patent No. 117,153 and state briefly what that patent relates to.

This patent refers to a Cotton machine, and the object of the invention I think is best understood if I read a few lines of the translation of this German patent. It says in the beginning:

"In very long Cotton frames which make many pieces of fabric (W in Fig. 1 of the same pattern) side by side many parts, for instance the carrier rods and narrowing rods are very long. The main structure or frame of the machine which supports the needle bars in its many sections is a long and heavy body of great mass. The bars b-d, however, are just as long, but thin and of small mass. When temperature changes, for instance when the cold working rooms are heated early in the winter the long thin rods b-d are warmed through much faster than the body of the machine. [fol. 387] They will therefore expand much faster than the latter so that the co-operating parts of the machine do not fit together properly during the early working hours. When, for instance, the bar B in Fig. 1 is against stop *f* the left side the first carrier C and L is barely in its correct position between the selvages needle *e* and the adjoining outer needle e^1; the next carrier 2 of section B is already somewhat off due to the expansion in *f*. The third carrier is still nearer to e, the carrier finally going over the selvage needles. This, of course, causes faulty fabrics. Experience shows that for 15 or 16 stoppings of fine gauge the difference can amount to more than half the distance between two needles which would necessitate the stopping of the machine until all parts have an even temperature throughout. The narrowing fingers show the same differences.

. . . . . .

"The logical thing to remedy this would be to cut the rods into two parts and arrange separate stops and abutments. This, however, is costly and troublesome.

"My invention takes the stops f-f away from the ends of the machine and places them in the center or as near to the center as possible as shown by Fig. 2. This, of course, cuts the inaccuracies obtained by the expansion and contraction exactly into half and makes therefore a better working condition for the machine."

[fol. 388] This patent is one of the first attempts of this inventor to reduce the expansion and contraction of the machine by taking the end stops away from the ends and combining them into one unit and putting them into the center of the machine.

This device is not an attachment. It is the standard mechanism, the standard controlling mechanism, for the full length control of the carrier rods for the Cotton machine.

No mechanism is shown in this patent to operate any of the spindles automatically. No designs can be made by the use of this device in connection with the carrier rods as shown.

There are no co-operating carrier rods in the nature of Schletter's patent; that is, co-operating rods for a stroke less than the fabric being knitted by some other carrier rods.

I will now turn to the patent to Claringburn British patent 4967 of 1890 and state briefly what that device is in its relation to the subject matter in controversy here.

This is a device for a Cotton machine. The object of this invention is to enable the machine to make two sets of fashioning or narrowing, one on the selvage, and one at some distance from the selvage. These two sets of fashioning can be made on the same row of loops or upon different rows as may be required. This is somewhat like the Sowter patent with the one difference, that in the Sowter patent the long carrying fingers which make the loop inside of the piece of fabric and the shorter ones which do the same thing only on the selvage were connected with each other so they have to work together. In this case those two sets of [fol. 389] narrowing fingers, the wider on the inside and the narrower one are controlled separately and do not have to work together. In order to do this a shifting motion of the cam shaft is provided which must move twice. That is, it must shift first to operate the one set of narrowing points and then again move to another set of cams to operate the other ones.

This device consists, similarly to the Sowter patent, of a screw A with a nut C—this is Fig. 3, with its nut C to actuate the bars D and E in Fig. 3, and with it the narrowing points F and G shown by Fig. 4.

The ratchet wheels D and E are actuated by pawls G and F, turning screw A. The cam K is controlling the pawls F and G and must be operated by hand as shown in Fig. 1.

The brackets holding the spindle A are extended upwards and form bearings for the second screw L with its nut M. This controls the slides O and P in Fig. 4 by means of bars N and Q. The spindle L is operated by ratchet wheels R, S, T and U which are mounted upon a bushing. L is connected to A by spur gears. Pawls R and S turn into L and are also controlled by K. An additional movement is given to spindle L by pawl T and U which are controlled by a multi-faced cam Z also shown in Fig. 1 in the rear of cam K. This cam is automatically turned by the ratchet pawl B^1, which Figs. 9 and 11 show with the double shogging arrangement which, of course, does not concern this invention at all only in so far as the first shogging movement levers F and G operate spindles for the normal selvage work.

[fol. 390] This is not an attachment, but it is an essential part of the machine. This has in fact a regular end stop for the narrowing points. There is no reversely-threaded spindle in this attachment and not any of Schletter's work can be done. The device has absolutely nothing to do with carrier rod control. It pertains only to narrowing, the purpose being of having two sets of differently, independently working narrowing fingers for the purpose of making gores and pockets and things of that nature for ladies' garments. This patent shows and describes an automatic reversing motion. That automatic reversing motion would not be applicable to the use for which Schletter in the patent in suit has put his automatic reversing mechanism. This, as a matter of explanation, is exactly the same reversing motion which we have discussed in the Sowter patent. There is no difference, and I think it is, therefore, not necessary to repeat that description. The reversing mechanism in the Sowter patent, is absolutely not applicable as a timing and selecting mechanism for the carrier rods.

I will now turn to the Woodward & Shaw British patent No. 19,627, and state what that patent shows. I will quote from the patent itself. He says on page 1, beginning line 25:

"The chief object of this invention is to obviate the necessity for the attendant who has the machine in charge, having to manipulate the racking arrangement at both ends of the

frame after each set of goods or parts of goods has been completed."

[fol. 391] As this quotation says the sole purpose of this patent is to eliminate the necessity for the operator to go to each end of the machine to rack his spindles back and the arrangement is made to do so from the center of the machine. The reversely-threaded spindle which this patent shows is not provided with any automatic control because it serves for the same purpose as the standard spindle now on the machine, with the difference that the machine has two spindles on each side, one for narrowing and one for carrier control. Woodward has the same spindle for both, and only at one end of the machine. This, of course, makes it necessary to have the rows of bars controlled by the spindles in one piece. Expansion and contraction, as explained in one of the previous patents, causes so much variation in length in such rods that it would be impossible to use them for machines of any finer gauge or greater length.

This is, of course, not an attachment, but the machine itself. The spindle is operated by hand and the whole thing is very impractical on account of the objections just mentioned, if it is not inoperative altogether. Not any of Schletter's work can be done. There are no cooperating carriers in the sense of Schletter's patent and no automatic controlling mechanism and the machine can only be used for full width of travel of the fabric being made.

At the demonstration of certain mechanisms the other day Mr. Darby stated: "We are now going to produce a spliced clock from the mechanism which illustrates the Woodward patent." I saw that device. I also saw the mechanism at [fol. 392] the right end of the device which was stated to be illustrative of Woodward. As to what I have to say as to whether or not that device as shown in the demonstration has anything to do with the Woodward patent, I will state that I was unable to find anything. There is nothing in that Woodward patent anywhere giving any sugestion or indication that it, or any part of it, could be used for the splicing work such as was supposed to be demonstrated the other day. I did notice in that machine the selecting mechanism that was supposed to be representative of Woodward, I mean the selective mechanism which was at the end of the machine which was supposed to illustrate Woodward. That selecting mechanism in my opinion, as shown in that demon-

stration, in that form would not be applicable for use in the Schletter attachment of the patent in suit as a timing and selective mechanism. I will state why it would not be applicable. It would not be applicable simply for the reason that in his present construction you could not put it in the machine. It could be put in the machine there in the outer section where, of course, there is nothing to interfere with it. Everything is free and open, but it is sufficient to take one glance at the machine to see it could not be built into a section of the machine which is fully provided with all the parts necessary to operate the machine. This is true because Schletter is compelled to put his spindle in a certain relative position to the carrier rods. He has to get a rigid and strong stop lever there in order to withstand the blow of the carrier rods, and it is clear that to do that the fulcrum of [fol. 393] these levers must be very close to these carrier rods and at a certain position so that he could attain all his objects in this invention. That almost fixes the position of the fulcrum for the stops, which, of course coincides with the spindle, into a certain position on the machine. He had to have it there, and the reversing mechanism shown by that, particularly the one to which you referred, can not be built into the machine.

There is a difference in that regard between a device for controlling carrier bars and one adapted and intended to control the narrowing points—that is in respect to the location of the machine; where the spindle must be placed. I will explain that, I am speaking of the attachment when I say that it is fixed almost absolutely in this one position in which it is. Now when it comes to carrier rods and narrowing rods, of course that does not hold out, but the control of carrier rods and narrowing rods in the machine as it is, as Schletter had it before him, is on the outside. That is on either end of the machine. He could therefore not utilize that part of the machine, the outer end, for the construction of his attachment. He was compelled to take it into the machine and meet there these obstacles which I referred to some moments ago.

Q. I am not quite certain, Mr. Meyer, that I have brought out what I had in mind. Mr. Miller stated that the distinction between the control of carrier rods and the control of any narrowing points did not amount to anything; that whatever would control one could be used to control the

other. What I wanted clear, you stated in connection with the control of the carrier bars it required a location in the [fol. 394] central part of the machine so that certain controlling mechanism or selecting mechanism which might be usable at the end of the machine could not be employed on the inside of the machine because of all of the other mechanisms there, and I want to know how it is with a controlling mechanism for narrowing points? In other words, is it necessary to have mechanism which is going to control narrowing points as distinguished from carrier bars in the central part of the machine or can mechanism for that purpose be at the end of the machine?

A. That can be in either position. It can be in the center or it can be on the end.

Q. Briefly why is that? What is the difference in the work done in controlling the carrier bars and in controlling the narrowing points?

A. Well, their work is, of course, of quite a different nature. Just to mention one point: The carrier rods are reversing over the machine, and then come against their respective stops with a considerable blow as I have already mentioned. The narrowing points do not leave their stops at all. In fact, they are drawn against their stops by springs. They are in constant contact with their stops.

Then the narrowing rods being cut for expansion and contraction, have two stops so each half can be controlled in both directions, but those stops would prevent any carrier movement at all. It is not possible.

It is also made impossible by the fact that the narrowing motion swings through and back, up and down, during these motions to transfer the loops. Now all these differences of course make it impossible to use the one for the other.

[fol. 395] I will now turn to the British patent to Cotton, No. 208,362, and state briefly what that device is and what its capabilities are.

In this patent which is applied to a Cotton machine, C and C-1 are splicing carriers which are carried by carrier rods D-2 and D-3. D is a base on which nuts D-2 and D-3 are free to slide, and D-4 is a reversely-threaded screw which moves D-2 and D-3 towards or away from each other. D-5 and D-6 are the stops for the carrier rods or the abutments which are fastened to the carrier rods. The spindle is operated by a ratchet wheel which may be set in this par-

ticular instance so as to be a rack for one or two needles as desired. The inventor calls it the rate of graduation in claim No. 1 of the patent.

This invention, as I say, is applied to a Cotton machine in the description. The object here is to make what is known in the art as a pointex heel by adding a splicing yarn to the body of the fabric in a well known manner quite extendedly discussed here. It is an attachment in all its parts like the old attachment which was used before Schletter's invention came out, to make the pointex heel. It can only be operated in one direction, of course.

This attachment has quite a complicated safety arrangement to prevent the jamming of the nuts. That is, if the operator should forget to return them after his operation is finished they would eventually come together and something would break. Now such a safety device would have been unnecessary with Schletter's attachment, because the reversing button could have easily been put in such a position as to prevent any accident like that and cause the nuts [fol. 396] to be returned to their original position in an automatic way.

No insert work or no shadow clock work can be done on this particular attachment, as it is clearly shown in Figs. 2 and 3 of the drawings where the two arms extending from the nut corresponding to the stops 7 in the Schletter patent are very clearly shown to be provided and constructed only for the stoppage of the two carrier rods C-3 and C-2. It shows it there very clearly; that they cannot be used for anything else.

No split seam work, of course, can be done for the same reason. No reversing motion, automatic reversing motion, nor is there any controlling mechanism as far as the selector is concerned.

Q. Referring to the nuts which you say are adapted to control two carrier bars, you are familiar with this attachment, are you not, in actual use?

A. The Cotton attachment?

Q. Yes, the one-way reinforced selvage attachment?

A. This device is exactly like that. I have been familiar with that for 23 to 25 years. That was manufactured and sold by Textile Machine Works. It was made solely for the purpose of making pointex heels. I did not know it to be used for any other purpose whatever. It could not have been.

When these stops controlling two carrier bars in the manner shown in that patent are operating, there is not any control of any carrier bar by the stops with the abutments passing from one stop to the other. In other words, the stops in this attachment are not used as opposed stops. [fol. 397] They act simply as the stops either right or left stop between those particular stops, and the regular end stops of the machine.

My attention is called to one question and answer in Mr. Miller's deposition with reference to the Gotham attachment which I understood him to say is precisely the same as that in this patent. He was asked:

"Q. Could this attachment as it stands be utilized to manufacture any fabric, split or spliced, and would it, if designed and planned only in one direction to the wale? A. Yes, sir."

I say that it certainly could not be so used. The only thing that it could do is to make the reinforced selvage design for itself and what is known as the pointex heel—a straight line with a point on the top.

Q. As a practical matter are there any designs, either for inserts or split seam work or anything of that kind which could be made on this attachment working in one direction?

A. Only triangle. I have never heard of the use of such a design in hosiery for any purpose.

I will now turn to the British patent of Claringburn, 7,068, and state briefly what device that is and what its purpose is.

The object of this invention is to enable machines of the Cotton type to make fabrics such as ladies vests—the widening of the two inside selvages of one or more pieces of work such as making a full bosom gore in ladies vests, for instance.

[fol. 398] In the patent the stop on N of screw O is fitted with the slide N-1. This is shown in Fig. 1 of the patent. This slide N carries two stop screws U and V which can be adjusted so that either one of them may serve as a stop for the carrier A, which is making the center piece of the fabric which is shown standing right in the center to the right of Fig. 1. These stops are of different lengths and the difference in the length is equal to the width of the set of narrowing points which is used for narrowing or widening the

inner as well as the outer section of the fabric, this fabric being made in three different sections.

Now since these points are used for both sets the width of those points must be added or subtracted to suit the operation that is to be made. Therefore the difference in the length of these screws is just the width of those set of narrowing points and they are swung in such a way that either one or the other one of them stops the carrier A according to the narrowing operation which is made at that particular time.

This machine knits, as I say, three sections; first the center section A is knitted and then pressed off the needles. That means after the section which is shown in Fig. 2—the upper part of it—after that is knitted that is pressed off the needles as explained in the specifications on page 2, line 30. Then the carriers C and B are put into operation to make the portion from F to K, as shown in the patent. This involves the process of widening, of course. The machine having narrowed before, the nut O is moved in the proper direction to do so. For the open loops, of course, [fol. 399] for the widening which is well known in the art, the standard filling points are used.

At K and H, the high points there the nut O is moved in the opposite direction and the narrowing takes place.

The carrier rod M is sliding at a fixed stop P shown at the extreme left of Fig. 1, for the selvage of the fabric. Since this selvage is fixed, no narrowing can take place. In other words, that is a straight piece of fabric. If the nut O should be applied to make a narrow fabric or a wide fabric at the selvage which could be done, then the possibilities of making such a gore as shown would be eliminated.

It could not be done any more because the controlling feature would be used to control the widening or narrowing of the fabric itself. The movement of the carrier rod M at the edge—F and K—of the carrier is limited by the stop and the collar Q is also shown in Fig. 1.

After the outer portions are finished they are pushed down on the needles and the center part is run onto the needles again and the knitting of the center portion is completed.

I have here a piece of fabric which I had cut out to make that perhaps a little clearer. The center portions here are shown as they are knitted. This is the center portion which is knitted separately and then pressed off the needles and

then this is knitted on either side like this (illustrating) and then the whole thing is laid over in this way and sewn along the edges giving this gore which is the object of the patent.

To make this clear, this is not an attachment but that is [fol. 400] exactly the standard part of the machine, the part which is necessary to do the narrowing, and there is no carrier rod control with the exception of the stroke of the fabric being knitted at the time. There is no reversely-threaded spindle, nor can any of Schletter's work be done, the machine being merely equipped for the making of these gores as just described. There is no automatic device for the reversal of the spindle in either direction.

Mr. Howson: We will offer this garment produced by the witness in connection with his last answer as Plaintiff's Exhibit 51.

(Marked Plaintiff's Exhibit 51.)

Q. Mr. Meyer, you spoke of the pointex heel reinforcement which was done by this device of the Cotton machine, or the old Gotham device. Is that drawing a picture and illustration of the pointex heel?

A. Yes, that is an illustration of the pointex heel.

Mr. Howson: We offer this drawing in evidence as Plaintiff's Exhibit 52.

(Marked Plaintiff's Exhibit 52.)

The Witness: I will now turn to the patent to Chipman. It is U. S. Patent 1,163,970, and will state as briefly as consistent with such a complicated subject, what this patent is. I will first state what this machine is supposed to do. This machine is a specially built machine to knit automatically a stocking as shown on sheet 12 of the drawings. That stocking is not having any designs placed in it, or any [fol. 401] split seam work, not outside of the fact that some shaping is done in the form of the stocking itself. That is the ordinary fashioning. There is no design outside of that. I will state as briefly as I can what this reversely-threaded spindle does in the machine and how it is controlled. The reversely-threaded spindle in the machine, of which there are two, are controlling so-called fashioning spider arms which are shown in the patent in Fig. 5, 339,340 and so on. There are quite a number of arms there on the

right as well as on the left side. The ones on the right are the only ones that are numbered. And, of course, the ones on the left are exactly the same. Now these spider arms are turned so that there are blades on the outer ends of the arms which come into the path of the jacks which control these needles. The fulcrum of these spider arms is located in a curved arm 346, curving down from the spider towards a nut 348. The spindle 215 is moving this bracket and with it the spider arm either in the one or the other direction. That is, of course, doing only one thing and that is the narrowing or the widening of the stocking as the occasion may require. These spider arms, in a manner which is of no interest as far as our object in the patent is concerned, put jacks either into operation or out of operation, and in this way obtain the narrowing or widening of the stocking.

The control of these spindles is best shown by sheet 11 of the drawings, where the other figure 16 shows a section through the controlling device, while the figure below, figure 17, shows a side view of it.

[fol. 402] This device, a very highly complicated affair, as the inventor says himself in the specification, shows the spindle 215, and around it three ratchets. Around these ratchets again are located a number of ratchet rings, 225—they are marked, of which we have 225, 3, 4 and so on, of which we have five rings side by side some of which are cut in one direction and some of which are cut in another direction.

Since we have 5 ratchet rings which in turn control the three inner ratchets 255, we have a total of eight ratchets on either side, or, altogether, 16 ratchets to control the process of narrowing that stocking to its particular form. Obviously this was employed for the purpose of having enough controlling points to make this entire stocking in one operation, because in succession these ratchet rings are used, and then in turn they operate inner ratchets which are fastened to the spindle in such a way that there is a certain guard which sometimes permits the ratchet at pawling on one tooth, or sometimes for two teeth just as the shaping of the stocking might make that necessary, and the ratchets themselves are controlled in such a way as shown by Fig. 17.

This inner ring or drum which is shown in the shaded section of this drawing, and which is provided with openings 256—at 256 it is marked the end of a little lever which

is fastened onto the inner ring—now as the device turns eventually one of these little openings will come to that end 256 of the lever and it will slip into there, thus making it possible for that lever to get into contact with the lower, [fol. 403] inner ratchet 255 or one of the others as it may be and operate that until it is passed on and presses this pawl out of contact again. Now in this way the operation goes on and gives the various movements eventually to the controlling spiders for the needles until the stocking is completed. Of course it is absolutely impossible to make anything else but that very stocking with such a device.

This is not a Cotton type of machine. It is an independent type machine, and there are no reciprocating carrier bars. Referring to this reversing mechanism for controlling the spindles in this patent, such a reversing mechanism would have absolutely no applicability at all for Schletter's purpose in controlling the—It is an impossible thing.

My attention is called to one thing in Mr. Miller's testimony at page 256, as follows:

"Q. Are the additional ratchets provided so that the spindle can be rotated to a greater extent? A. Yes. That is right. That is the idea."

I do not quite understand that. Perhaps he meant in a way that the additional ratchets are provided to make the ratchets go two teeth instead of one. That is true, but there are no additional ratchets provided for that. They all do that. That is part of the invention.

I will now turn to the patent to Laue & Timaeus, German patent No. 21,332, of 1881, and will state whether that is a specially designed machine and what its purpose is and briefly how the purpose is accomplished.

[fol. 404] This patent is for the purpose of making designs in what is known in the art as reverse plating. That means that two threads are alternately becoming either a primary thread or a plating thread.

This is a Lamb machine which is shown in the patent, with independent needles. It does not really deal with the manufacture of stockings altogether, but is a hand operated device to make these reverse plating designs. I believe, If I am right, that it was cited to show that there are several carrier rods provided for a Lamb machine. Outside of that it does not show anything at all. There is absolutely

no similarity to Schletter. There is no spindle and no automatic control.

On page 290 of the record I find that Mr. Darby asked this question:

"Q. Is that the only purpose of this patent? A. This is merely to show it was common in Lamb machines to use multiple carrier bars."

I have no comment to make on that statement, but that is perhaps exaggerating the thing a little bit. It is done in Lamb machines, but it is not common. The common Lamb machine has only one carrier.

I will now turn to the Lamb & Noon British patent 15,129 of 1889, and will state what that device accomplishes and how it does it so far as relates to this controversy.

This patent relates to improvements on the patent to Lamb & Lowe and to their combination patents granted [fol. 405] to those same inventors. In the drawing B is a slur which carries the ordinary main thread carrier 1 and 2. Carriers 3, 4 and 5 are the supplemental thread carriers of which 3 and 4 are laying the stripes next to the end stripes and 5 is making the center portion, F and F^1 control the movements of the supplemental carriers through stops G and G^1 mounted on F and F^1 respectively. They are also provided with stops H and H^1 which control the inward movement of the main carrier bars.

These stops on the screws G and G^1 serve to control the supplemental bars 3, 4 and 5 and they are so arranged that though the heads of the screws to operate bars 3 and 4 face inward the head of the screws controlling bar 5 face outward, as shown by Fig. 3. Bars 1 and 2 work between stops H and H^1 and end stops C and C^1.

Slides E and F are fitted on screws which are not marked. I in Figs. 4 and 5 is a horizontal shaft. Upon this shaft are keyed two ratchet wheels their teeth being cut in opposite directions. Keyed to this shaft is also a spur wheel, i^4 which meshes into a train of spur wheels connected with the traversing screw of slide F. To give motion in either direction a mechanism is employed which is controlled by pattern chain I^4 as shown by Fig. 5. This mechanism is in all details the same as shown and described, as I mentioned in the beginning, in the British patent to Lamb & Lowe as discussed in connection with that patent previously men-

tioned. As far as the design is concerned which is shown, the center part is made by carriers 5, 3 and 4 making the adjoining stripes and 1 and 2 making the stripes from the [fol. 406] edge of the selvage to the next stripe of the design.

This machine has no reversely-threaded spindle. It is not an attachment. It is in fact a specially built machine for this particular kind of work. No reinforcing design can be made without changing the construction of the machine and no splicing work—I mean laying of additional thread on the body of the fabric could be made because there is no provision for any one of the carrier rods to run the full width of the section. There is a stop for carrier rod 1, an end stop on the right side, but not on the left. No stop is provided on the left side whatsoever. There is a stop for the other carrier rod on the right side but none on the left side which clearly indicates the purpose and design of this machine was merely to use these stops for the striping design as shown in the patent, the shape of which stripes of course could be altered.

Q. As I understand it, in this patent it is the selective or controlling mechanism for controlling the spindles which is not shown or described, is that right?

A. No, it is shown in one of the patents referred to before.

Q. That is in the Lamb & Lowe British patent, of 1870. Is that the one you referred to?

A. Yes, if that is the one that we discussed some ten or fifteen minutes ago.

Mr. Howson: Just note that counsel agree that the Lamb & Lowe patent was not referred to by Mr. Miller.

The Court: I don't think it was offered in evidence? [fol. 407] Mr. Howson: No. I do not think so.

Q. Then that is all you need say about that, Mr. Meyer, except I should call your attention to a statement made by Mr. Miller at page 300 in discussing this Lamb & Noon patent. He was asked this question:

"Q. So that the stops which control the traverse of the carrier rod are made removable so that the carrier can go right through to the end of the machine? A. Yes."

Is there any indication or suggestion of that kind?

A. Stops can be made removable, but as I say there is no provision made to stop these carriers on either side of the machine which would make it impossible in that construction to use them over the full width of the fabric.

I will now turn to the Black British patent No. 13,905, and briefly consider that patent.

That patent is quite foreign to the object of our machine or the invention of Schletter, and if my memory is right I think it was just offered to show the operation of a carrier in an independent needle machine type as compared with the driving of a carrier rod in the Cotton machine, and on Fig. 2 of the drawings there is such a thing which is known as the driver B connected to the carrier in such a way that one short offset at the end of Driver B, in this case on the right hand, engages to the corresponding offset of the carrier and takes it along until an incline or a cam [fol. 408] comes under that wedge-like extension and lifts it out of contact with the carrier, permitting the driver B to pass on the full stroke of its course while the carrier F remains at the place where it is left by the driver. Now I have on Friday given quite a lengthy explanation comparing the operation of such a device as this with the operation of a carrier rod, and I have endeavored to show there is all the difference in the world between these two.

I will now turn to the Mueller United States patent 1,564,438, and state its characteristics and purposes and operations, and so forth.

The Mueller patent is not a Cotton machine, but is for the so-called flat knitting machine with independent needles, and it is of the type in which an auxiliary thread-carrier is released from its slide by the so-called yarn carrier stoppers or inclines as we just discussed them in the patent referred to previously. This is the identical drive. As I explained at length that makes it already impossible to use anything of that nature as it is shown here for the full-fashioned machine, for the Cotton machine. There is a connection shown in this patent from the spindles, to which I will refer later, to those inclines releasing the carriers by means of the drivers marked 28 in Fig. 1 It will be seen by this construction that it is a long thin rod which extends from one of the nuts to one of the inclines to release the drivers. This is very well possible in this machine where there is nothing else to do but just move a little bit of steel

of which the inclines consist, and all they have to do is to [fol. 409] release that carrier. There is no weight and there is nothing to overcome and therefore a flimsy construction like that affair is possible in a machine of this type, but it certainly is not possible in a machine of the Cotton type where the conditions and problems are quite different, as I explained.

Now another thing in connection with this, once more, is the fact that it would not be accurate enough for design work in a Cotton machine on account of the fact that the carrier is simply released and is not standing exact enough to make a design in a stocking where the structure is very fine and where such slight irregularities would not be permitted, but would make the stocking, if made by such method, unsalable.

That is all right for coarser material, for underwear and so on, and sweaters, but not for the full-fashioned machine with its fine and accurate work.

The principal mechanism doing this consists of a reversely-threaded spindle 24, provided with nuts 25 and 26, as shown by Fig. 2 best. Each one of these nuts is connected to a rod 29 and 28, which in turn is fastened to these inclines as I just explained. In that way of course the revolution of the spindle in one direction increases the distance between these two stoppers while a turn in the opposite direction decreases it in a well known manner, to wit, that if it has a fork-shaped ratchet pawl lever 38, connected to a slide 19 (Fig. 3). This slide is given motion by an eccentric 16 and connecting linkage which may be of any construction. That is shown in Fig. 2.

Loosely mounted upon the spindle 24 is a ratchet 41, [fol. 410] to which a step by step movement is given by ratchet pawl lever 43, which is swingingly mounted to arm 38 as shown by Fig. 4.

In addition there are two ratchet wheels 35 and 36 on spindle 24 the teeth of which are cut in opposite directions.

This chain which is mounted upon ratchet 41 is given a step by step movement by this eccentric through the connections which I have just mentioned. The chain which is mounted upon this wheel has three heights of buttons, a low one, a medium one and a high one. A cam piece 49 which is shown in Fig. 4 is brought into a certain position, either high, medium or low by these cam links. In accord-

ance with this position the outer end of lever 50 to which that cam piece 49 is fastened, swings up or down and with it a pin 53 which is attached to that lever.

In Fig. 3 that pin appears again lifting or lowering or elevating a fork-shaped lever 38 which can turn about a fulerum 44. Now according to the position of that pin 53 either the upper part of the lever is in contact with one ratchet or the lower part is in contact with the other ratchet, or a medium height put both of them out of pawling motion. And in that way the spindle of course is turned in the direction which is indicated by the arrangement of those three different heights of links in the chain 46, 47 and 48.

This is, as I say, not a full-fashioned machine and no reinforcing along the selvage can be made because there is only one auxiliary carrier; no inserts or split seam work can be made for the same reasons. No shadow clocks or [fol. 411] any double design can be made. There are, of course, no cooperating carrier rods in the sense in which Schletter took out his patent.

There are no reciprocating carrier bars at all, are there. There is no device at all on the machine for fashioning at the selvage.

Now if attempt were made to rebuild this machine and to put in fashioning screws of some kind so that a garment could be fashioned at the selvage there would be difficulty about that. I do not see where one could put it. I will explain. With an entire reconstruction of the machine it might be possible, yes, but even then there would be nothing gained except that the device could be widened or narrowed but the design possibilities of this auxiliary carrier would not be enlarged in any shape or form.

On the assumption that the machine is reconstructed and provided with fashioning screws in addition to those design screws already in the machine, I will explain why it is that no split seam work could be made and no reinforcement on the selvage. This is because there are not sufficient carriers to do so. There is only this one auxiliary carrier that can be automatically controlled, and that is all. Naturally if we could build six or seven carriers in there and control them all automatically, we could do that, but that is an entirely new machine.

Mueller does not suggest the solution of that problem at all.

I will now turn to the British patent to Willatt, No. 573 of 1871.

This is a patent which is an old English patent and shows very faint drawings. I believe that Fig. 3 is perhaps the [fol. 412] one out of which most of the description may be seen. This patent pertains to an independent latch needle machine. Its construction is of the usual kind showing some standards which are connected together by bars, and so on. The sinkers, dividers and other loop-forming elements are operated in a well known manner by locks and slides.

This invention is a device to narrow or widen the fabric made upon this machine, which is done as follows: A bar K is secured to the top support, supporting three bearings for axles of threaded screws L, which is shown in Fig. 3 on the left side. The outer ends of these axles carry each a rocking lever, the upper ends of which are provided with a double-ended pawl which drives a ratchet wheel. The lower end of the rocking lever is hinged by a link to the upper end of a lever which carries a stud O^1, operated by a groove cam P, contained on the camshaft.

There are two nuts M sliding on bar K which can be moved forward or away from each other. Bar K is directly underneath the spindle L. Each nut carries a slide N to which is linked a double ended lever N^1, the outer end of which is kept down by a spring; the inner end of lever N^1 carrying the narrowing points or ticklers.

The slide N is attached to the rocker lever fulcrumed at O. The lower end of this lever is operated by cam P on the camshaft in the usual manner.

Besides this movement which is the contact movement the ticklers have a movement up and down imparted to them [fol. 413] by the upper end of a lever O^2 also actuated by the camshaft. M^1 is a driving guard screwed to the top of each nut M. This is shown in Fig. 3. The inner end of this driver falls into a slot carried by a sliding plate R^2. In this way a carrier is thrown out of the path of the needles. That is one of the older constructions in machines of this type; that the carrier instead of being stopped is merely depressed so that the thread is taken away from the active knitting operation of the needles and in this way widening or narrowing is accomplished, and in this way it is done in this machine too; that the carrier falls into

this depression which I mentioned and is depressed away from the needles and the widening or narrowing, as I said, is performed.

This machine is like many of the others, not an attachment, nothing but the regular end stop of a machine, and the same nuts are used as clearly shown for the narrowing ticklers as well as for the control of the carriers, no automatic device being shown to obtain forward or backward motion of the nuts. It must be done by hand. There is no reversely-threaded spindle and of course no cooperating carrier rods so the knitting of Schletter's machine can not be done by the use of this device.

In considering this patent, Mr. Miller at page 289 of the testimony was asked this question:

"Q. And the stops controlled by the spindle; do they in turn control carrier rods which traverse less than the full width of the fabric being knitted? A. Yes."

[fol. 414] I will say that there are no carrier rods less than the full width of the fabric being knitted. That is the only thing that can be done with that machine.

I will turn back a moment to the Muller patent, and to certain things that Mr. Muller said in reference to that. He was asked:

"Q. Are there opposed stops for certain of the carrier bars which have a stroke——"

I will say no. There are no carrier bars in the Muller attachment.

He was asked whether or not there was a device for varying the stroke of the bars controlled. There are no bars, as I understand.

He was also asked:

"Is the chain device that you have referred to as illustrated in the figure, is that the main chain control of the knitting machine, or is that an auxiliary chain? A. It does not say, but I would not think it was the main chain. It looks to me to be just a little supplemental chain that has been hung there for the purpose, and to be a main chain it would have to be wider and have more room or more buttons."

My comment on that is that, of course it is an auxiliary chain. There is no main chain.

In other words, the Lamb type of machine which is con- [fol. 415] trolled by the cam system entirely is different from the Cotton machine.

I will now turn to the British patent 1,991, of 1869, to Roe and state what that device is and to what it is directed and how its work is accomplished.

Fig. 5 I believe is the figure which shows most of the parts to which I will refer in order to make this clear. This is an independent needle machine with spring beard needles. The machine has a camshaft from which motions are given to various parts of the machine. The part of the invention which pertains to the Schletter attachment is what the inventor calls the third and main improvement, the description of it beginning on page 6, line 9, and is called an apparatus for narrowing and widening the fabric. It consists of three brackets in which a round bar Q is free to turn. That is shown on the upper part of Fig. 5 slightly to the right. This bar is round and has a groove planed along its entire length. In the groove is sliding a square carrier bar Q^1, to which the carrier, of course, is fastened. The carrier bar has a lever Q^6 secured to it, hinged to a connecting link and to a bent lever Q^3 operated by a roller.

This construction is best represented by Fig. 6, but is not of great importance.

This causes the carrier to be raised into the position shown by Figs. 2 and 5. The traverse of sliding bar Q^1 is effected by a collar which is placed so as to slide free by bar Q. This collar forms part of a short arm S^{13} which is screwed to the bar Q^1. Attached to the bearings is a flat bar S^5, shown shaded in Fig. 5, on which a box S^6 slides. [fol. 416] This box has a projection in front on which, on the under side, S^7 is fastened and a chain is attached to this stud which passes around several pulleys and drums to give to this slide a reciprocating motion in accordance with the well known drive which is also described in the previous patent to Roe, but which is not important enough here to go into any details.

The opposite side of box S^{11}, the upper side, carries a stud on which the drivers S^9 turn, the drivers in this case being the drivers described repeatedly which releases the carrier from its motion.

One of the drivers will catch on S^{13} and move it along until such a driver is thrown off by the arm of one or the other of

the cam pieces S^{10} and S^{11}. The cam pieces are all inclines which lift the driver off the carrier.

Now these cam pieces are supported by S^{12},—the trucks or cam pieces which are mounted upon two nuts, S^1, and these nuts are moved by screws under the right and left of the center frame respectively. One of these screws is cut with a right hand thread while the other has a left hand thread. Each one of them is provided with a notched disc S^3 at one end, shown in the lower right part of Fig. 5. Between these discs is a hand lever, which is not marked, but is very plainly visible, and two reversible pawls S^4, each of which takes into the notches of one of these discs by raising or lowering the hand lever so as to rack the disc. The stop nuts will be moved away from each other if the pawls move one way, or if the pawls are reversed they move toward each other. The traverse of the carrier rod Q^1 is stopped at [fol. 417] each end by a short arm Q^5, which is shown in dotted lines extending from the lower end of Q^1 and another arm S^{12} coming up from the nut and is the stop against which the arm Q^5 swings to stop the traverse of the carrier rod, so that the position of these stops determines the length of the stroke of the carrier. Now the tickler or narrowing points are operated from the same nut at the same time by means of two bars T^1 and T^2 which are shown sliding in a base and are shown shaded on the right side in the middle of Fig. 5. This bar in which the two narrowing bars rest has a slide provided with a roller T^3 which runs upon a plate T^4 carried by suitable brackets, so that the entire slide carrying the narrowing points can roll in a horizontal direction in that roller. That gives the one motion to the narrowing points.

The other position, the lateral movement, is of course given to it by an extension from the nut S^{12}, which can be clearly seen. It is not marked but it has a bent arm which goes over to the narrowing rods, and whenever the stop nut is moved forward to shorten the stroke of the carrier, it at the same time gives the necessary lateral movement to the narrowing points.

This is again a machine which represents the modern narrowing mechanism in a machine with the one exception, that it has only one nut to operate the narrowing and carrier rods at the same time. That machine was originally made for hand operation as it is mentioned in the specification repeatedly. For power it speaks only of it in a very vague

[fol. 418] way and of automatic reversing not at all. Of course all the other objections are here, as no reversely-threaded spindle, no cooperating carrier rods and not any of Schletter's work can be done. It is merely for the narrowing of a fabric in its full width.

Mr. Miller on page 287 referring to this patent, said:

"We therefore have in this structure a right and left threaded carrier stop spindle, which while shown separated into two pieces, obviously could have been made of one piece."

I do not exactly agree with that. Although they could have been made in one piece, of course, I do think they would have defeated the purposes of this particular invention. With the screw in two pieces the possibility remains to operate one of those stops at a time which may be at times necessary, and with a screw put into one that could not be done. The entire construction was obviously made that way because each one of the pawls can be operated independently for each spindle.

I will now turn to the British patent to DePass 10,405, of 1884, and state what that patent illustrates so far as is relevant to the Schletter patent in suit.

This patent relates to improvements of a machine known as the Dutch machine to make fancy knitted goods in several colors or split work and also the production of strengthening or reinforcing threads in the knitted portion, as shown by Figs. 1, 2, 3, 4 and 5 on sheet No. 1 of the drawings.

[fol. 419] This machine consists of a so-called driving saddle, as the patent names it, marked A. for the large main driving saddle, which is rigidly connected to an auxiliary driving saddle marked *a*. Both of them in the connected relation are shown by Fig. 6 on sheet 1, the lower right hand corner and they show clearly the so-called drivers fulcrumed to these two saddles, the purpose of these saddles being the taking along of the carrier in the well-known manner.

Now it has slurs *b* and *f* on the machine, and by slurs in this case are meant the inclines which release the carrier driver from its respective carrier. These slurs are provided with sliding pieces, b^1, b^2, f^1 and f^2 respectively. These sliding pieces which are in the form of angular bracket may be fixed by thumb screws operated by hand in such a way that they can engage or permit a pawl to come into engagement with a part of the machine to be described later, or out

of engagement. In this manner that machine is changed from narrowing to widening. That means two of these pawls on the upper part of the machine are set to widen while two corresponding pawls on the lower machine are set for narrowing. This, of course, has to be done by hand every time. That is the motion has to be stopped, these thumb screws have to be loosened and the pieces have to be re-set to get the respective pawls into operation. Now these pawls work in rack bars *j*. They can be very faintly seen on the extreme right hand of Fig. 7 directly under *k*. You can see the teeth there which constitute the rack bar.

There is also a rack bar on the lower end so that the [fol. 420] teeth are in exactly the opposite direction to these, and the two pawls which I mentioned some time ago work into these rack bars,—the upper one and the lower one. These pawls have two joints. They have one joint about which they swing as a whole and then the pawl in itself has a joint in the center part of the pawl again so that it could be swung up like this (illustrating) and the center part swung up like this and down again. That is done by two bars which are shown by Figs. 7 and 11. In these figures the bars can be seen engaging pins which are sliding in these bars and which are fastened to this center joint of the pawls.

There is a hand lever provided in Fig. 11 by means of which these two bars can be either moved apart from each other or toward each other. That means then that the center joint of these pawls which I have referred to are elevated if these bars are moved away from each other. When they are so lifted the outer end—the pawl end—by means of these lifting slides of course back on the teeth of the rack. Then when the hand lever is pressed down it gets hold of the next tooth of the rack, is pushed over to the extent of one tooth. In other words, in order to narrow the fabric it would be necessary to take this hand lever as shown by Fig. 11 and marked m^4 and pump it for the narrowing which is required. If, on the other hand a widening is necessary, then the pawls have to be reset, or when working in the racks narrowing have to be taken out of operation by the thumb screw which holds them while the other ones have to be put into operation, and then the same pumping [fol. 421] of this handlever has to be repeated to accomplish the widening.

Now in that way these designs which are shown in Figs. 1, 2, 3, 4 and 5 are made. That is, the main body is made

by the main carrier controlled by the main saddle as shown in Fig. 6 while the design is, of course, controlled by the auxiliary carrier in the manner as just explained, by either narrowing or widening by means of the racks provided for that purpose. The designs in Fig. 4 and Fig. 5 take three carriers. That is all that the machine has. And the main carrier and auxiliary carrier provided for that purpose makes the body and the one design and the auxiliary carrier the other design.

Now it will be noticed that the space between the reinforcing designs of the Figs. 4 and 5 is straight and of a certain width, and that is all that the machines can make. It can only make that particular form of design along a straight line and that is done by means of the heeler D which is shown in Fig. 7. The heeler D is nothing but one of these inclines that lifts the carrier out of its contact which is set stationary in the center of the machine, thereby taking the carriers always out of operation when you come to that center line from either side, this incline being inclined in either direction as clearly shown and causing the carriers to leave an open space in the center part of the stocking as shown, and either operation is, of course, entirely limited to that.

This machine is, as I said, of course not a full-fashioned machine and can not do any other work than described here, [fol. 422] and can not do it in any different manner. There is no reversely-threaded spindle. In fact, no spindle at all. There are no cooperating carrier rods nor any double work or any shadow clock work or any work of that kind can be done. There is no automatic motion to control cooperating movement of short stroke carrier rods, and the entire design could certainly have not suggested anything to Schletter in constructing his device.

Q. Will you turn now to the British patent to Mather 7,476 of 1837, and explain that device and its operation so far as relevant to the Schletter patent in suit.

A. That patent is an old hand frame with no provision for power whatsoever. All of the operations must be done manually. The frame is provided with spring beard needles and is arranged to make two stockings at the same time, by employing two tiers having loop forming parts, one on top of the other. This of course necessitates the duplication of

many working parts, although the sinker and similar parts are made out of one piece of metal operating together.

This machine has two sets of thread carriers, one set for plain work and an additional set for making heel tabs. The thread carriers are attached to an arm *b* which projects from slide piece *c,c* to which they are connected by hinges so that they can swing out of the way. That is, each carrier can either be swung into the path of the sinkers and dividers and the operating parts or can be swung out of the way if not desired for any operation. The pieces *c,c* are mounted upon a triangular bar *d*, along which they have a free sliding motion, which is clearly shown in Fig. 6. They slide along [fol. 423] this and there are notched tail pieces *e,e* provided which project from this sliding piece *c,c* and when the said carriers arrive at one of these tail pieces, they come against that inclined plane 2,2 or two tubular pieces *f*, which are mounted sliding on a rod *g* in Fig. 9, thereby force the bar away from the needles, and thus shorten or lengthen the stroke making the fabric narrower or wider as the occasion may be.

Now the bar *g* is supported by brackets 5,5 from a swing bar 41, and the tubular pieces *f* are controlling the length of the stroke of the carrier bar and are embraced by forks *h,h* attached to nuts *i,i* as shown in Fig. 10. These nuts are working upon two screws *k,k* which therefore may be used to lengthen or shorten the stroke of the carrier by placing these tubular controlling pieces *f* into the proper position. Upon this position as it is clear will depend the width of the work, for at this point the thread carriers will be released and fall, and stay the thread at whatever point these inclined planes are placed.

A ratchet wheel 16 is upon that end of spindle *k* in Figs. 6 and 7. This ratchet wheel is the one for the heeling screw, the heeling screw in this particular case meaning the screw which controls the widening and narrowing of the heel tab which this machine can make in addition to the regular fabric.

When the time for making the heel tabs has arrived the one carrier which has made the plain fabric so far makes the heel tab on one side while another carrier makes the heel tab on the other side.

[fol. 424] This particular screw is used to control the heel tab on the one side while the other screw controls the heel tab on the other side.

The handle 17 is furnished with a pawl 18 working into the teeth of ratchet wheel 16. 19 is a safety pawl retaining the wheel and preventing any return motion.

Now when the workman wishes to narrow his work he has to take hold of this handle and either draw it towards him or push it away from him to turn the spindle in which direction he wants to do it in order to produce the work which he intends to make.

This is somewhat the same way as the patent which we referred to some time ago but with the exception that this machine being much the older one there is as yet no provision made for narrowing by means of ticklers or narrowing points. The narrowing is accomplished by simply reducing the stroke of the carrier and laying thread over a lesser number of needles. Outside of these comments on these machines they are exactly the same as any similar types. They have no narrowing or widening; no carrier bars or reversely-threaded spindles or no automatic mechanism can be used for any design work and in this case have no bearing whatever, this being one of the first machines, anticipating even Cotton by a great many years.

Preference was made during the taking of the testimony by the defense to an attachment put out by the Textile Machine Works for making 2-needle closed slits, and there was a reference to a patent to Bitzer, which is in evidence as Defendant's Exhibit E, and one of your circulars which is [fol. 425] in evidence as Defendant's Exhibit C. I am of course familiar with the 2-needle closed split attachment, and I will now state briefly just what the relation between that attachment is and the attachment which I have described here as being put out under Schletter patent in suit.

I will say that they have nothing to do with each other. I mean the additional movement which has been added to the Schletter attachment does not in any way change the Schletter attachment as such. It is merely a supplemental attachment which can be or can not be supplied with the Schletter attachment as the customer desires. We have a similar attachment, but we are not supplying that as a matter of form with the Schletter attachment. We sell the Schletter attachment, and, in addition to it, if the customer wants it, we also sell this Bitzer attachment.

The Bitzer attachment is used in conjunction with the Schletter attachment as an added part. It is removable. It can be put on or taken off at will.

I have stated, that we sell the Schletter attachment without the Bitzer attachment.

I have caused to be compiled a list of the sales of the 2-needle closed split attachment, concerning which I have been asked, for the years 1931, 1932, 1933 and 1934. That is the list handed me, that correctly sets forth the sales according to our records.

Mr. Howson: We offer this in evidence as Plaintiff's Exhibit 53.

(Marked Plaintiff's Exhibit 53.)

[fol. 426] Mr. Howson: I might say, if the Court please, that there has already been put into the record a complete list of sales of the Schletter patent, so that with this the relative sales can readily be seen.

Mr. Miller stated that at the present time the 4-needle split, such as can be made by the Schletter attachment in your commercial form has been superseded by the 2-needle split which requires an additional attachment. The facts with reference to that, are as follows—Of course it is very difficult to estimate to what extent such alterations or such additions took place, but it is, I believe, a fair estimate when I say that about 95 per cent of the manufacturers make the 4-needle split and the rest the other.

I refer to the defendant's attachment as shown in the photographs, Plaintiff's Exhibit 2, and to the drawing, Plaintiff's Exhibit 34, which has been offered as plaintiff's drawing of defendant's attachment based on the stipulated photographs. Mr. Miller, defendant's expert, criticized this drawing on the ground that it did not contain certain additional parts necessary to make the device function for the making of 2-needle split as compared with 4-needle split. I will take these stipulated photographs and state what those photographs actually show, first with reference to the supposed addition to the 2-needle split supplement, and secondly with the character of work that is being done by the attachment.

These photographs show the additional attachment which is provided for the Schletter attachment to make a 2-needle [fol. 427] split on lines inclined to the wales and courses

of the fabric. Here is a photograph 10,041 in which the general arrangement of that device is very clearly shown; but it is also very clearly shown that it is not used in this method. It is disconnected; not only is it disconnected, but the four pins, which, as Mr. Miller quite readily explained, are necessary to make it operate successfully, are not even provided in that attachment. They are not there. Now it may perhaps be said that that is only working in one direction and therefore four pins are not necessary, but that is not so because the work on that machine as shown by photograph 10,019 clearly shows that this machine is a footer which is making—the fabric is right on the machine—which is making the cradle sole where a line inclined to the wales in opposite directions is necessary. Now that photo also only shows the two pins and is showing therefore very clearly that the people in this particular mill which had this machine applied to that attachment did not use it.

In making this drawing based on those pictures, I will state that in my opinion the drawing certainly does accurately show the attachment as actually utilized in the machine shown in those photographs. It shows the two pins and shows all the rest of the attachment.

In this condition with the 2-needle supplement unhooked, or not used, a 4-needle split is made by the attachment.

I am familiar with the 2-needle split attachment employed by the defendants as here. That is not the thing that is shown in the drawing as having been detached and [fol. 428] not used. I mean the same 2-needle split attachment that is illustrated in the drawing which the defendant has produced—I don't like to be misunderstood there. I did not say it has been removed. The entire attachment is on the machine, but the vital part of it, namely the connection from the operating arm to the pins which must be moved in order to get the 2-needle split, has been disconnected. It is still there but it has been put out of action, so the Schletter attachment proper is the thing that is there.

Q. What I want to find out is, as a practical matter, what this 2-needle split device as made and sold by the defendant, as they themselves have explained it, what relation that bears to an attachment consisting of auxiliary stops with a reversely-threaded spindle and an automatic selective and timing mechanism for operating those stops

in either direction? I want to know what this device has to do with such a device as I have described.

A. There is no direct relation whatsoever.

The 2-needle device of the defendant could not be used independently of or without securing it to such a device as I have described, as that set forth in the Schletter patent. The 2-needle attachment is an addition, simply an addition to such an attachment as I have described as that coming under the Schletter patent. It is a fact, with reference to the attachment, as defendants themselves have explained it, that when the attachment has been sold, the 2-needle split part of it can be used or not used at will in the manner illustrated in the drawings which are in the stipulation.

[fol. 429] I am referred to that part of the deposition of Mr. Miller in which he stated, with reference to the drawings of the patent in suit, that he was not able to understand the connection as shown in the drawings for operating chain 70. Mr. Miller suggested two reasons as to why he regarded these drawings as obscure. One was that cam 35a as he put it has a double function to perform; that is to say, not only to operate the lever which operates the chain 70, but also the operating mechanism for rocking the stops, and I am asked to state whether or not mechanically, if it is a matter of mechanics, if there is any such difficulty as Mr. Miller suggested. I will state there is none. Neither is there any difficulty presented by the fact that cam 35a must have that function. There is no difficulty at all. It is common to have a heavy cam used for two or three different motions. This particular cam is nothing but an eccentric, and on its turn where the eccentric strikes the roller of the pawling mechanism it simply lifts that pawling mechanism up and lets it come down again as it progresses in its motion. Then when this eccentric part comes to the lower side of the shaft of course the pawling mechanism has been completed and then this cam strikes the lever, this horizontal lever—it is not marked—and turns the ratchet which operates the chain 70 thereby selecting the pawl which is to operate when the next pawling mechanism takes place. This is, as I said, absolutely common. There is nothing unusual about it, and it operates very successfully.

I am asked to state whether or not in the model which has been produced, which is Plaintiff's Exhibit 11, the ar-

[fol 430] rangement of this cam 35a and the manner in which it performs the function is fully shown in the model in the way I have described. I will say yes, it is.

Mr. Miller made another point with reference to that drawing. He said that the theory with reference to the lever and its operation suggested in the plaintiff's model and suggested by himself to Mr. Howson while examining him, that the second reason why he had difficulty in seeing that was because he knew the thing would not work in a full-sized machine. I will state the facts in that regard: First, I will say that Mr. Miller is not right in saying it won't work; I know that because I have seen it work.

I will state what I have done or caused to be done to demonstrate that proposition. I have taken the Schletter attachment as it was in our possession formerly attached to the model which we used in Trenton and have built it into an actual machine in our experimental room which we have in almost constant operation, and with which we make stockings and which on the whole is operating very successfully, very nicely.

I have had a photograph made of the machine in question, and I produce it. I have here the photographs which show the attachment as applied to a regular 20-section knitting machine and successfully used on that machine for producing stockings of the type of the Schletter stocking shown in Fig. 10 in the patent drawings. These photographs are marked with numerals corresponding to the same parts in the Schletter attachment. So I think it un-
[fol. 431] necessary to go through these various parts. The machine is a larger reproduction of the model, Plaintiff's Exhibit 11. That is a full-sized machine operated under service conditions. It has been in operation quite a while; five or six months, I think. I am not exactly sure of the date on that, but quite a while.

Q. How has this terrible offset that troubled Mr. Miller so much, the distance between the lever in the front and the pawl in the back, how has that worked out in practice in the full-sized machine?

A. That worked out very nice. One has to consider there that the work that particular lever has to do is very little. Really that has nothing to do but to change those two light pawls in operation. That is either throw one out and leave the other in, or vice versa, and work of that nature does not

require very much power and therefore it is not necessary to have a very rugged and heavy construction there to do so.

The device, so far as concerns this lever connection for operating the chain 70, is not flimsy or likely to get out of order or lacking in sufficient accuracy. The accuracy is not so close, as was said here, because the chain links are comparatively long. It is true they are to be held as short as possible, but really all they have to do is bring the button under that lever and lift it up and whether that is a little this way or that way does not matter, especially since the changing of the pawls is done during a time the rest of the machine does not operate. There is really no accuracy required at all, and how that lever, the entire arrangement, [fol. 432] would operate, I think it would operate indefinitely as it works very nicely the same as any other part or connection in something similar.

Mr. Howson: I offer the photographs identified by the witness in evidence as Plaintiff's Exhibit 54.

(Marked Plaintiff's Exhibit 54.)

The Witness: During his examination Mr. Miller answered a series of questions to the effect that the attachment as shown in Schletter's patent would not operate at all because when the camshaft was shifted to the right in narrowing, there would be no support for various rollers, and so forth. I do not agree with that. I will state briefly why that is so. That is so for the simple reason that in the patent drawings the cams known as the narrowing cams are not shown. Now the narrowing cams are so essentially a part of the knitting machine that nobody would think of making a machine without supplying that machine with narrowing cams. As a matter of fact, even the machine which I have seen here on the floor, which is not provided with narrowing motion at all is provided with narrowing cams. That has absolutely become a second nature to the erector. He would not consider a machine complete that has no narrowing cams, because the machine could not operate.

I will state that the arrangement of the narrowing cams in the model, Plaintiff's Exhibit 11, is such an ordinary arrangement as would be used to take care of such a situation.

[fol. 433] Afternoon Session

OTTO HAMEL, called as a witness on behalf of the plaintiff, being duly sworn, testified as follows:

Direct examination.

By Mr. Shaw:

The The Witness: My age is fifty; I am a full-fashioned hosiery manufacturer; residence is at Wyomissing, Pennsylvania. I am associated with the Meinig Hosiery Company. They are located in Reading. I am treasurer of the company.

My experience in the knitting industry is as follows: I started in as a youngster as a helper on knitting machines of the full-fashioned type, then became fixer, then foreman, and manufacturer. The duties of a fixer vary. My duty in the main was to keep the machines in running order. That involves the mechanical adjustment of the various parts of the machines and the replacement of parts from time to time.

I am familiar with the Schletter patent in suit.

I will take a copy of that patent and look at Fig. 1. I understand that a question has arisen in this case with regard to certain of the cam rollers, such as the cam roller in contact with cams 45 and 51, as to what would happen during the narrowing when the camshaft is shifted to the right. As a practical man, I will make some comment on that. It is perfectly natural that a second cam must be included with every cam on a knitting machine. There is a working cam, and a narrowing cam that would naturally be included in the machine to do that, which is not shown in the drawing here. [fol. 434] I take it for granted that the drawing shows the attachment, not the knitting machine itself. In each place where there are rollers to be in contact with cams on the main camshaft, there are two cams employed. The functions of those two cams are as follows: One cam takes care of the idle motion and the other cam is doing certain work. In other words, when the machine is narrowing, the camshaft moves to the right and the roller would then engage with the other cam. It is not necessary that those cams should be placed, some on the narrowing side and some on the work side. I do not find any narrowing cams in Fig. 1.

The question has also been raised as to the operation of cams 35 and 35a and 34 and 34a when the narrowing takes place. The specification points out that the attachment with the reversely-threaded spindle should operate during the narrowing. I will comment on that. That would be perfectly natural. If the narrowing cam is on there, the roller will then act on the cam and those levers will not operate, but will remain idle.

There has also been some discussion with regard to the operation of the back pattern chain 70. The specification points out that the chain shall be operated by step-to-step movement from the main camshaft through the lever by cam 35a. I understand the mechanism shown in Fig. 1 for operating the back pattern chain 70.

My attention is called to the fact that Fig. 3 of the patent, which is a sectional elevation view, does not show any mechanism. The absence of that mechanism in Fig. 3 does not prevent you from understanding the mechanism shown in [fol. 435] Fig. 1. I think it is very clear in Fig. 1. The connection is shown there. I will describe that connection from the operation of the chain. The chain 50 being supported by the pawl wheel 54, supporting buttons 55, these buttons and the chain move around one link every fourth, and the buttons will eventually come to lever 56, raising lever 56, raising lever 60, releasing shaft 42, and the shaft 42 being pulled to the left by a spring 43, that, in turn pulls shaft 41 to the left, and that horizontal lever being directly connected to the shaft is pulled over and comes under cam 35a, is depressed on the left, and consequently being pivoted on the right end, comes to the pawl on the back of the machine.

I have seen a knitting machine where such a connection was employed. I refer to the machine, photograph of which was introduced before lunch by Mr. Meyer as Plaintiff's Exhibit 54. That is the machine. I saw that machine operated four or five times. I saw stockings or stocking blanks manufactured on that machine.

Q. From your observation in that connection which you have described, between the camshaft and the back chain 70, what would you say with regard to its operation?

A. Why, it operated very successfully, and I think that it would work that way indefinitely. It is a practical connection but could be improved.

I am familiar with the use of two kinds of sinkers, long nosed sinkers and short nosed sinkers. At the present time we employ both long nosed sinkers and short nosed sinkers. We employ the short nosed sinker to prevent loop stepup from the cradle sole in the manufacture of ladies' full-fashioned hosiery. That would be spliced or reinforced in [fol. 436] the cradle foot when we employed short nosed sinkers. Those stockings which we manufacture, are sheer—that is fourth grade. In the manufacture of the cradle sole of our footers, all the machines have the short nosed sinkers. We are operating 28 footers with short nosed sinkers. Those short nosed sinkers that we are employing are similar to G^1 shown in Fig. 3 of Defendant's Exhibit H-1.

The Meinig concern employs altogether 120 machines. We do not have any difficulty in manufacturing stockings with the short nosed sinkers; none whatever. We do not have any difficulty with regard to the avoidance of streaks when we use short nosed sinkers. They are not apparent. I produce a sample stocking in which the cradle sole is made with the short nosed sinker.

Mr. Shaw: The witness produces a stocking which I offer in evidence and ask to have marked Plaintiff's Exhibit 55.

(Marked Plaintiff's Exhibit 55.)

The Witness: In the manufacture of that stocking we used a Reading full-fashioned footer and legger machine. There was an attachment employed in which there was a reversely-threaded spindle with stops capable of automatic movement in both directions. There were 40 needles of the needle bed which were associated with the short-nosed sinkers on each side of the foot. In the use of short nosed sinkers, we do not have any difficulty with regard to the selvage.

Mr. Shaw: You may cross-examine.

[fol. 437] Cross-examination.

By Mr. Darby:

The Witness: We used short nosed sinkers at the stepup portion. They are referred to as short nose sinkers and not selvage dividers. Those are straight short nose sinkers.

I know the difference between short nose sinkers and selvage dividers. For the sake of the record I will explain the difference between them. I have it right here. This is a selvage divider.

(The device labeled H-1 in Defendant's Exhibit H-1 is referred to by the witness as a selvage divider.)

Q. Now, I understood you to say that you are familiar with the Schletter patent and its operation. I am interested now in its operation shown in the drawings of the patent, and I understand that from your description of its operation, when it is desired to rotate the reversely-threaded spindle, a button on the chain moves the lever 56 out of the way and the spring 43 then moves the rod 42 to the left; is that right?

A. Correct. The rollers 30 and 31 are carried by the vertical arms 40 and 41 to the left, so that they come in contact with the cam surfaces 34a and 35a.

Q. And how far does the rod 42 move to the left,—the width of the lever 57, is that correct?

A. Yes, I think it is 9/16ths of an inch.

Q. The width of the lever 57?

A. It is the width of the offset of the lever.

Q. So that when the stop or bracket or nut or whatever it is, labeled 59, comes in contact with the device 58, that is the end of movement 42?

A. That is right.

[fol. 438] Q. And therefore the roller 30 and the roller 31 moves 9/16ths of an inch into cam relation with the cam surfaces 34a and 35a, is that right?

A. That is correct.

Q. And similarly when the camshaft 5 is moved to the right during narrowing, the rollers 30 and 31 likewise come in operative position relative to these cam surfaces 34a and 35a, right?

A. Yes.

Referring to the stocking, Plaintiff's Exhibit 55, that is a spliced stocking.

Q. So you are not making any herringbone or other sutures with the short nosed sinkers that you have referred to?

A. With a cotton sole.

Q. There is no herringbone or other suture in these stockings?

A. Not in that one, no.

Mr. Darby: That is all.

Redirect examination.

By Mr. Shaw:

Q. Mr. Hamel, what can you say with regard to the width of the narrowing cam employed in this device with relation to the working cam?

A. The width of the narrowing cam is the same width as the working cam.

Q. Among the duties of a fixer, does the examination of that fall within the province of a machinist, in fixing?

A. That is natural, if the machine is built that way.

I am not connected in any way with the Textile Machine Works, plaintiff in this case. My company is not connected with it. It is entirely independent. Neither myself nor my company is interested in the outcome of this controversy.

Mr. Shaw: That is all.

[fol. 439] Ralph H. Greiss, called as a witness on behalf of the plaintiff, being duly sworn, testified as follows:

Direct examination.

By Mr. Shaw:

The Witness: I am forty years old. I live at 314 South 17½ Street, Reading, Pennsylvania, and I am a machinist for the Textile Machine Works, the plaintiff in this case. I have been employed by the Textile Machine Works for sixteen years on December 1st. During that period I have been employed as a machinist. Within the last two years I was promoted to experimental engineer.

Mr. Meyer produced certain photographs which have been offered in evidence as Plaintiff's Exhibit 54, showing a machine which has a spindle attachment thereon. I will tell what I had to do with that machine. With this particular type of machine, I had taken the parts—I think the parts

were ones we had in the model in the Trenton case—I was told to take the parts off of this model and place it on a 20-section full-fashioned machine which we have in our experimental department. I put that on and got it into operating condition. Nobody told me to put narrowing cams on the attachment. I did it in order to make the attachment work, you had to have narrowing cams, if you wanted to make any fabric off of that.

I said that I have operated the machine. The machine itself I would say was working about four days straight and then it was laying idle except when people came to [fol. 440] look at it off and on, when it was operating. I would say approximately a total of about a hundred hours. Stocking blanks were manufactured on that machine. It operated satisfactorily. The knitting speed which was employed in the manufacture of the stocking blanks was about 40—45 courses a minute, I would say.

As to how that speed corresponds to the speed of knitting employed on full fashioned machines in 1921 and 1922, I will say that this type machine is not our latest type of machine. It is a very old machine. It is a long needle machine. I would say this particular machine could not run no more than about 50 to 55 courses at the most.

Q. You did not quite answer my question. Do you know what the knitting speed of a full-fashioned hosiery machine was in 1921?

A. That is more than I could say—about 50, I would say.

Q. I call your attention to the connection as shown in the photographs connecting the cam 35 and 35a with the rear pattern chain, particularly as shown in photograph 10,333; what have you to say about that connection?

A. What is the number of the lever?

Q. Lever 35, and that goes to the back pattern chain 70.

A. Well, I would say that that was very practical.

I did not have any difficulty in accurately moving the back pattern chain 70 when I was operating that machine. The machine illustrated in the photographs is practically the same thing as the model, Plaintiff's Exhibit 11. The [fol. 441] little model is the same thing as the attachment that is on here. I spoke about the fact that we got the parts of the attachment from a model. I don't know no more than hearsay whether that model was ever in Trenton or not.

Q. When you took the parts off of the model, how was the connection shown in photograph 10,333, between the cam 35a and the back pattern chain, was it the same as shown in the photograph or was it different?

A. No, it is the same there; the same as shown on that.

Mr. Shaw: You may cross-examine.

Cross-examination.

By Mr. Darby:

Q. Did I correctly understand you to say that you understood that the attachment as you acquired it was the attachment as was used in the model in the Trenton case?

A. As much as I know, yes.

Q. And then did I understand you to say that the mechanism on the attachment as you got it was the same as is illustrated in the photographs at the presenet time?

A. Well, I will say that the motion when I placed the narrowing cam in there, I had to change one cam there, to give me a double movement. In other words, when I placed the correct maximum that had been on one cam as 9/16ths of an inch, but when I added that other cam I had to make that move still another 9/16ths or a total of——

Q. An inch and an eighth?

A. An inch and an eighth, yes, sir.

Q. Just where did you add that other cam, referring [fol. 442] to Fig. 1 of the patent in suit?

A. On the right side there. It doesn't matter where you place it as long as you shift your levers over to make that movement.

Q. No, I am interested in exactly where you did place it; can you show me on this drawing?

A. The cam was placed on this side. That is, the cam was placed to the right of the device marked 34a. That is not the only change that I made. The other change was that lever 57, in order to make that move that additional 9/16ths of an inch— I had to weld a piece on there in order to put that collar out that far in order to give me that extra 9/16ths movement.

It is correct, that in the model machine as I received it, it had the mechanism such as is illustrated by the letters A, B, G and this rod C. I put that mechanism on that machine. I did not put that mechanism on the model in-

itially. I do not know whether the model was in operative condition when I received it. And I do not know who did put that mechanism on the model, or when it was put on there. I have no idea when it was put on there.

I am shown photograph of a machine appearing on page 179, Volume 2 of the Record on Appeal, and am asked if that was the machine or the model which I received or concerning which I have testified. I will say—Yes, that is the model that I had taken it off of. As far as I can see it is exactly in the same condition now as it was when I received it to do this work.

My attention is called to the mechanism for imparting [fol. 443] movement to the chain 70 and I am asked to compare it and see if they are the same. I will say that that is not the same.

Q. Therefore there appears to be a slight inconsistency in your testimony, and I would like to be placed right. In this model as you received it, what mechanism was provided for actuating the chain 70? Is it as shown in this drawing, Plaintiff's Exhibit 15, or is it as shown in that photograph?

A. It is like that shown in the drawing. The model as I received it was not provided with the mechanism as illustrated in that photograph.

Q. My statement is correct, then?

A. Yes, sir.

Mr. Darby: I would like to have the photograph marked for identification.

(Marked Defendant's Exhibit G-2 for identification.)

Mr. Darby: I think that is all.

Redirect examination.

By Mr. Shaw:

The Witness: Mr. Darby asked me about the cam that I added to the right of cam 35a; that cam was one of the cams I mentioned that I added without being told to do it. It is just a round disk, a round cam. When the cam shaft is shifted to the right that cam merely goes on another round cam and does not work; it is inactive.

Mr. Shaw: That is all.

[fol. 444] CHRISTIAN F. MEYER, resumed the stand.

Direct examination continued.

By Mr. Howson:

The Witness: Mr. Miller during his examination at page 238 of the typewritten record was asked this question:

"Q. Do you understand the necessity in a device like the patent in suit remaining stationary, inoperative while narrowing is being effected? A. Yes.

"Q. Do you agree that it is absolutely necessary to have the reversely-threaded spindle 11 of the patent in suit remain stationary while work is being effected? A. Yes; do you want me to state the reason?"

Then he was asked:

"Q. In the structure as shown in the patent in suit, insofar as it is described in the specifications of the patent in suit, does the spindle 11 remain stationary during narrowing, or is it racked during narrowing? A. It is racked."

I will state what I have to say with reference to that.

I must say that it is not racked. Schletter even provided a special safety device to prevent such racking during narrowing operations, and the device is shown by Figs. 11 and 12 of the Schletter patent drawings and which were [fol. 445] described during my deposition in connection with the description of the machine. I understand Mr. Miller's testimony to be based upon the thought that the attachment will be built without narrowing cams. That is the only explanation.

Referring to the Schletter patent 1,531,349, which was put in evidence by the defense or by ourselves, as the case may be, I will state what character of work is involved in the clocks shown and described in that patent; that is to say, whether it is split seam, splicing, or reinforced work, I will say that that is ordinary splicing; that is, an additional thread laid on the bottom of the fabric. That is very clear. This type of work is usually referred to as "splicing". That is the general term used; it is practically the same as reinforcing.

With the attachment shown and described in the patent in suit, I have testified that if the stops are rocked, that

will make an open split, and if held stationary, that will make a closed split. I will now state how they would be operated in doing splicing work. In doing splicing work they would simply be put stationary, that is the racking machine. It is possible in this that the stops would be eliminated so they become stationary stops.

Mr. Miller, in one of his answers said that in order to do splicing work it would also be necessary to put in a plain stop, that is, eliminate the undercut. That is not necessary. Mr. Miller, in his own designation of the stop, which he said was used by Schletter, admitted that it is not necessary. He says that the first two needles over- [fol. 446] lap and the second two needles make the herring-bone split, but if the first two needles do overlap, it must have been done against the stationary stop and that is the stationary stop that is later used for the open split, too.

Mr. Miller testified at page 276 of the record—I think it was in connection with a discussion of the Zwicky patent that the variable rocker motion is necessary in order to manufacture the modern stocking where splicing or split seam work is performed, in order to produce a commercially salable produce, and the object of the Zwicky patent was to provide such a rocking motion. I will state that rocking motions of that character were in use long before the Zwicky patent originated. For instance, in connection with the reinforcement work done on the rocking attachment in connection with the pointex heel, the use of a rocker motion, too, is involved. The Textile Machine Works itself long prior to the Zwicky patent furnished variable rocker motions.

Q. Can you, with reference to the patent which I now hand you, Cecka patent 1,213,333, indicate what such rocker motion was?

A. Yes, this is a variable rocking motion which is to be used for that very purpose, that is, to rock the part of the needle bar to vary with the design as the fabric is being manufactured.

So far as the Zwicky patent is concerned, that was a delayed improvement in such rocker motions. Originally the old rocker motions were operated from the cam shaft; that is, the cam shaft with so-called cam pieces on it which corresponded to the length of the part that was to [fol. 447] be rocked would revolve on the cam shaft. As the

machines got longer, there developed a certain twist in the cam shaft and since this motion must correspond with the carrier motion it sometimes happened that they were not quite parallel to each other, so to speak, that the rocking started a little earlier than it should because the twist in the cam shaft detained it. Then Zwicky made a device where this variable rocking was originated from the Coulier motion, so that they would absolutely work at the same time so that this little defect which sometimes developed could be eliminated, but in principle it was exactly the same as the older motion of that nature.

Q. And whether or not for the purposes of use with the Schletter attachment or the reinforced selvage attachment with reverse motion as put out by you, the rocker motion of the type which you described could be used?

A. That would not make any difference. Any rocker motion could be used.

Mr. Howson: We will offer this Cecka patent 1,213,333, in evidence.

(Marked Plaintiff's Exhibit 56.)

Mr. Miller made a statement in connection with the Gotham device shown in connection with the British patent that he was discussing, that in order to change that device to a device with a two-way motion, all that would be necessary to do would be to add another pawl or pinion, a selective mechanism, a timing mechanism and so forth, and that [fol. 448] is all; I will state very briefly what the nature of the problems were which were involved in connection with full-fashioned knitting machines in which the device was to be used.

As far as the statement by Mr. Miller goes, that is true partially. First, we would have to add a selecting mechanism which, of course, would have to cooperate with the timing mechanism and we would have to make some provision to prevent the narrowing during the operation of the Schletter device because it would be disastrous if those would operate together. Then we have to make provisions so as to enable us to make all the various designs that Schletter had to do; in the devices to which you referred, there are only provisions made to stop two carrier rods, and as they are shown and as they were operated, it would be impossible to make the designs which Schletter had in

mind and which he actually made with his attachment. All of that had to be considered and had to be made before one could say that the attachment would be operating the same as Schletter.

It is a fact also as far as the Schletter attachment is concerned that it required the location of the selective mechanism in connection with the point in the device where the reversely-threaded spindle had to be placed.

Mr. Miller criticised the model, Plaintiff's Exhibit 11, because it had bumps on it instead of a chain. That is not a matter of criticism from the standpoint of the model. In fact, that would show exactly the same as if that were on a chain, because anyone would understand, it is very [fol. 449] difficult to make such a small chain, so we just put that on as a substitute. It does not matter in the mechanism where the bump is on the chain or on a wheel. On a full sized machine, we use wheels, and not a chain.

Mr. Howson: If the Court please, I have concluded with the examination of Mr. Meyer so far as the expert testimony is concerned, but there are certain facts that I want to have him examined about and I have asked my colleague, Mr. Shaw, to examine on that phase of it. You have no objection to that, Mr. Darby?

Mr. Darby: No objection.

The Court: Very well.

By Mr: Shaw:

The Witness: I know Richard E. Schletter. I first learned of the attachment of the patent in suit in the beginning of 1921. The circumstances under which I learned about it were as follows: Schletter came to us in the Textile Machine Works and told me about this invention of his and asked our assistance to work out the necessary drawings and specifications with the aid of a patent attorney in Reading. Because of that being the fact, he wanted us to help along and therefore wanted an attorney that was located near the Textile Machine Works. Mr. Schletter brought certain stockings with him at the time of that first visit. I identify Plaintiff's Exhibits 17, 40 and 44, as the stockings or stockings exactly like the ones Schletter brought along.

[fol. 450] I had certain of the stockings that Mr. Schletter brought with him, photographed. Plaintiff's Exhibit 41

are the photographs to which I just referred. They were taken on the date which they bear, namely, on March 21 1921.

As to what Mr. Schletter told me about the attachment when he first came to Reading early in 1921, I will say that Mr. Schletter was very much enthused about that attachment. He spoke to me of the great many possibilities that that attachment had; that one could make almost anything that came along with it, and he had great expectations concerning it.

He did not state that the particular type of seam shown in these exhibits, Plaintiff's Exhibits 17, 40 and 44, were all that he contemplated. He did not state that. He stated he could make any kind of work, any kind of seam, any kind of spliced work or split work. I have seen an attachment that Schletter himself had built. That was in the Brentmore Knitting Mill, just about the same time. Schletter ased me to come over and see it. I cannot say whether it was a little before or after the time, but around that time.

I will state what mechanical parts were embodied in that attachment at Brentmore, as I now recall them. It consisted of a reversely-threaded spindle, nuts, a number of cooperating carrier rods provided with abutments to bear against the stops of these nuts, then there were two ratchets, the piece being cut in opposite directions, two levers, and I remember there were chains, and of course other details [fol. 451] which I cannot exactly recall right now. I did not see the device in operation. I did understand how it operated. Schletter and I discussed that.

Referring to Plaintiff's Exhibit 44, I will state that it certainly could be manufactured by the attachment, by the wide center part being controlled by an abutment working between the two special stops and the two end parts respectively right or left against these stops and against the end stops from either side.

As to what the Textile Machine Works had to do with the application which was filed and marked in this case as Defendant's Exhibit K, I will say that we made the patent drawings for that application under the direction of Stewart. Stewart was making the application and we were merely aiding Schletter in getting it through. Mr. Stewart was the patent attorney in Reading to whom Mr. Schletter gave this device of his to apply for a patent.

A draftsman was sent from Reading to the Brentmore Knitting Mills. The draftsman was Mr. Albert Friedman. He is the same Albert Friedman who testified for the defendant in this case and stated that he was now sales engineer of the defendant company. The testimony of Mr. Stewart shows that on a certain date, February 11, 1921, I and Mr. Schletter went to his office and Mr. Schletter explained the invention to him. I remember that conference. Mr. Stewart also testified that from time to time the Textile Machine Works and particularly myself cooperated with him in the Schletter matter to file the applications. That is a fact. We did that right along for Schletter.

[fol. 452] Application Serial No. 569,559, Defendant's Exhibit K, was abandoned. I will state under what circumstances I first learned of the abandonment of that application. The first I heard of it was from Schletter himself. Schletter was very much excited about it because he told me he had not known anything about it and he asked me whether I had. That communication from Schletter was oral; it was not in writing. Prior to that time I had received no word that the application had been rejected and was awaiting amendment. I did not receive a copy of the official letter of April 18, 1923, from Mr. Stewart. I never saw any of these.

Q. Mr. Stewart also testified that he had a conference at the Textile plant with you and Mr. Schletter and some other man on August 6, 1924; do you remember that conference?

A. Perhaps that was that very particular one. We had conferences quite often at that time. That particular conference took place after the application, Defendant's Exhibit K, had become abandoned; there was nothing that took place at that conference that indicated to me that the application had become abandoned. There could not have been, because as I stated before, the first news that I had of that was from Schletter himself.

After the application which became abandoned was filed on June 19, 1922, and after Schletter had been up to see me in 1921, the matter was left between myself and Schletter in such a way that Schletter promised to follow up his application and in the meantime to try to put that attachment [fol. 453] in a form for commercial use. That took quite a while before any development came from his side, I think

around 1923-1924, we ourselves at that time did not experiment with that attachment because Schletter had taken out an application to do that himself, but being so slow in this particular work, he took this experimentation over to the Textile, because at that time, I think it was at the end of 1924 or the middle of 1924, we had established our own experimental room, which we did not have before that time.

Then after we got the attachment into our experimental room, we also could not make very much headway because we were extremely busy at that time. It was the time when we were way back in our deliveries and it was the policy of the Textile Machine Works at that time to hold new attachments and new devices back as long as we possibly could in order to put out our standard machines and our standard goods, but the attachment developed gradually. It took, of course, quite a while to tool it for commercial exploitation, until in the middle of 1927 we were ready to bring the attachment out and we did so, as a matter of course, the same as we bring out any new attachment that we manufacture.

That is all.

Cross-examination.

By Mr. Darby:

The Witness: I have remained friendly with Schletter all this time. Mr. Schletter is still living. The last time I saw him was several months ago. I think he lives in [fol. 454] Philadelphia. When Mr. Schletter came to me with that attachment in 1921, and he was very enthused about it and said it could make anything, I shared his enthusiasm. I thought it could make anything. I at once saw the value of that in the hosiery industry. I also appreciated at that time in 1921 that that attachment applied to a full-fashioned machine that could make anything, would be received enthusiastically by the industry as a whole.

Looking at it from the viewpoint of the plaintiff company here, the Textile Machine Works, I was of course not unmindful of the fact that the profits of the Textile Machine Works in supplying such an attachment would be considerable.

Q. And of course you realized as soon as you began making and selling these attachments, your profits in the manufacture and sale of them would begin?

A. A profit in a different direction. That does not mean, Mr. Darby, that we did not have profits at the time.

Q. No, I am not implying that for a moment. When you say profits in a different direction, you mean profits from the sale of these attachments?

A. No, I mean the sale of attachments—standard attachments.

Q. As well as these attachments?

A. These attachments were not ready.

Q. You testified concerning the attachments that you had sold prior to that time for making the pointed heel on the reversely-threaded spindle type, and I want to focus your mind on that. How long before Schletter brought [fol. 455] this attachment to you had you been making and selling the reversely-threaded spindle structure for making pointed heels?

A. Roughly speaking, nine to ten years.

Q. That was a reversely-threaded spindle, was it not?

A. It was.

Q. And it was sold as an attachment for application to full-fashioned knitting machines?

A. It was.

Q. And it was in addition to the narrowing mechanism?

A. That is true, yes.

Q. And it was in addition, likewise, to the reversely-threaded spindles that you employed for controlling the carrier rods at the same time to narrowing the work?

A. We did not employ reversely-threaded spindles for controlling the carrier rods.

Q. You employed spindles for that, didn't you?

A. Yes, but not reversely-threaded spindles.

Q. Then I will repeat my question and limit it just to spindles. These attachments that you supplied for making pointed heels were in addition to the reversely-threaded spindle that you employed for controlling the narrowing needles and in addition to the bedded spindle or spindles that you employed for diminishing or traversing of the thread carrier at the selvage edges?

A. That is true.

Q. That is correct. And this reversely-threaded spindle attachment was located at what part of the machine?

A. At some inside section of the machine. I mean by that at some place between the ends as distinguished from at the ends.

[fol. 456] We did not sell those attachments only for application to the knitting machines of our manufacture. I have seen that attachment applied to other machines. I saw it applied to practically any machine of foreign manufacture. I include Schubert & Salzer and Carl Lieberknecht machines. At that time, namely, in 1918, there were six or seven thread carriers supplied with our machines as we sold them. This number of thread carriers were supplied so that the manufacturer can use all those thread carriers and carrier rods for making different types of stockings. Likewise those carrier rods were all provided with stops. They would have to be.

Q. Those stops are adjustable, are they not?

A. They are not.

Q. Do you mean to say that the carrier rod is provided with permanent stops?

A. I must give you a short explanation in order to make clear what I mean when I said that.

Q. All right, I would like to have that.

A. The stops are adjustable insofar as a very short adjustment can be made by means of a stop screw which are provided in these parts, but they are not adjustable when you talk about their position on the carrier rod.

Q. Describe the nature of the device that was provided for each carrier rod by which an adjustment of its movement could be obtained? Do I make myself clear?

Mr. Howson: Excuse me a moment. I object to this cross examination going further along this line on the [fol. 457] ground that it is not germane to the direct examination.

Mr. Darby: Oh, if the Court please, I think this certainly is. This witness has gone through the entire gamut of the prior art and likewise he himself in his direct examination has gone into the structure that was sold by them before the Schletter attachment—and this has a direct bearing on it.

The Court: What is the last question?

(Question read.)

The Court: Do you mean on the original machine, without this new attachment?

Mr. Darby: Yes, sir. In other words, what I am developing—I will tell the Court quite frankly as well as Mr. Howson, I want to crystallize the difference between this old attachment and the new attachment, and in cross examination, of course, I can only do it step by step.

The Court: I don't know but what it could not be done all at once. You can ask him to point out the differences between the two.

Mr. Darby: He can if they had carrier rods that were a necessary part of it. But what I am trying to develop by the witness now is the particular device, whether it was a nut or screw that you turned on with a screwdriver or whether you positioned it on the carrier rod, and whether you can position it at will; that is what the question is directed to. So far as the attachment itself is concerned, [fol. 458] your Honor will recall that the carrier rods are not part of the attachment; that is the difficulty of it.

The Court: Then why is it material in this case? In this case you say it is an addition to that, over and beyond that—something that has been put on after all these rods have been put on.

Mr. Darby: Yes, sir.

The Court: Why is it material to this issue then? The question is, whether what you had before and the adding of this to the machine—putting this particular attachment on when this patent was granted, constitutes the invention, or whether the device that it covers is in itself an inventive device.

Mr. Darby: That is certainly one of the issues.

The Court: What difference does it make then about something that is admitted by both sides?

Mr. Darby: It makes this difference, if the Court please: in considering some instances in the prior art, I was seeking to avoid every instance in the prior art in asking this witness questions about it—but in considering some instances of the prior art the witness pointed out in some cases only two carrier rods. In the patent in suit, for example, your Honor will recall that there is a prescribed number, but there are only three carrier rods shown. I had reached the point of establishing that machines were

supplied with any desired number of carrier rods as the [fol. 459] basis for an argument on the insufficiency or sufficiency as the case may be of the witness's attempt to distinguish certain cases in the prior art. Now I am coming to another point that I did not expect to lead up in this way, but in view of the objection I have to. One of the questions in the prior art was this question of opposed stops.

The Court: Suppose you proceed with that. If you say that is your purpose, I think that is probably a legitimate inquiry.

Q. For that purpose I wanted to establish that these carrier rods, if the witness will agree with me, that these carrier rods with which the machinery was equipped, are also provided with some devices to be attached to the carrier rods in a stationary manner which will abut against the stops of the attachment in their movement, is that correct?

A. No, that is not correct.

Q. All right, what were the carrier rods provided with for that purpose?

A. For the purpose to work with the attachment.

Q. For the purpose of working with the old attachment?

A. Correct.

The Court: Not with the device that is under controversy here?

Mr. Darby: Not with the devices under controversy.

The Court: The old attachment.

Q. What were the carrier rods provided with to permit a stop in their travel?

[fol. 460] A. Those carrier rods that we were working on were provided with an attachment for that purpose, having suitable abutments.

Q. Were they formed integrally with the abutments or adjustable with the abutments?

A. They were permanently affixed wherever they were located for that particular purpose. They were not held in place by a screw; they were held in place by rivets.

Q. Were the abutments on those carrier rods located at different places; that is, were the abutments on each carrier rod exactly the same or were the abutments located in different places on the different carrier rods?

A. They were located at different places. I am still referring to this prior attachment of ours which was provided with automatic mechanism for rotating the spindle in one direction. That automatic mechanism was chain-controlled.

Q. Was there anything in the structure of the attachment which would prevent the carrier rod—one or more carrier rods being stopped on the inside of the stops mounted on the spindle as distinguished from the outside of those stops?

A. In the attachments we made, there was.

Q. What was there to prevent, if so desired, a carrier rod being controlled from the inside, between the inside surfaces of the stops as distinguished from abutting against the outside, if it was desired, by the manufacturer?

A. It simply was not desired.

Q. It wasn't desired?

A. No.

Q. There is nothing, as far as the structure is concerned, that would prevent it, is there?

A. Naturally not.

[fol. 461] Q. I want to ask you, Mr. Meyer, specifically, am I correct in this statement that the difference between the attachments that you sold prior to the Schletter patent in suit and the attachment that you sold after the Schletter patent in suit, beginning in August, 1927, was the provision of the selective mechanism and the actuating mechanism to enable the reversely-threaded spindle to be automatically operated in both directions where theretofore it had only been operated in one direction automatically, is that a fair statement?

A. To a certain extent, but that is not all. There was first a necessity to prevent the operation of that attachment during narrowing——

Q. Could I stop you there for a minute. We will come back to that. I will ask you to continue the story later. In this prior attachment of yours, prior to the Schletter period, as to the reversely-threaded spindle operating in one direction, was that permitted to operate automatically during narrowing?

A. We saw no necessity to prevent it.

Q. Was that permitted to operate during narrowing?

A. It was not operating.

Q. It was not operating during narrowing, is that right?

A. No. But it was not operating for one particular reason; that the work that could be done on it and the only work that could be done with it happened to be in that position on the stocking where no narrowing was required.

Q. In making the pointed heel, is that what you refer to?

A. That is what I am referring to.

[fol. 462] Q. And were you familiar with the attachment for selvage reinforcement?

A. We never used it for that purpose.

I am familiar with that attachment for selvage reinforcement. If the selvage reinforcement does take place at the narrowing it is correct that then you must not allow the reversely-threaded spindle to be actuated by the machine while narrowing is taking place.

Q. So for the same reason that you do not want that spindle 11 to operate in the patent in suit while narrowing is taking place, you do not want and did not want the spindle of your prior structure for making pointed heels to be actuated while narrowing is taking place, is that correct?

A. That is a little bit different; more of a difference, Mr. Darby.

Q. Will you answer my question first and then go ahead and make any explanations you want.

A. That is partly correct.

Q. I did not want to shut off your explanation.

A. Only when you make a reinforced selvage; you made the same width throughout the entire stocking and there is no difficulty to place your respective buttons so that no narrowing interferes with that. When, however, you make a design and your stops and controlling means move in different directions it is very much more difficult to avoid such a placing of the buttons in the wrong place and it is much more important to provide a safety device such as Schletter did.

Q. As a matter of fact, you called this prior attachment of yours the "reinforced selvage attachment," didn't you?

A. We did.

[fol. 463] Q. So that one of the purposes for which it was sold was to reinforce the selvages, is that right?

A. That is not right, no. That seems to be a paradox, but it is so.

With reference to this particular drawing, Plaintiff's Exhibit 15, I know who worked out this arrangement of apparatus, A, B, G and C. Schletter did it. It was the draftsman who made the patent drawing who first showed it in this fashion. It was Mr. Friedman.

Q. Then you would not agree with me in saying that Mr. Ischinger was the one first to work out this particular arrangement?

A. Not in the way you put the question to me, no.

Q. Well, apparently there is some limitation that enables you to answer it that way. Who was the first one who figured out that the structure shown in Fig. 1 could be operative if arranged in this fashion as shown in Fig. 15?

A. Why, Schletter again. There is nothing to figure out.

Q. And I want to clear up one more thing in connection with this: it is a fact, is it not, Mr. Meyer, that if the mechanism shown in Fig. 1 of the drawing is as you have illustrated it in your perspective drawing, Plaintiff's Exhibit 15, a view taken on the line 3-3 of Fig. 1, and looking in the direction of the arrows would show the mechanism A and B, would it not?

A. In an entirely correct drawing it would, yes.

Q. And Fig. 3 of the patent in suit which is described as being a sectional view taken on the line 3-3 of Fig. 1, and looking in the direction of the arrows, does not show any mechanism of that character, is that right?

A. No. That is not quite right.

[fol. 464] Q. All right. Turn to Fig. 3 and show me where it shows any mechanism of that character?

A. Fig. 3 shows the shifter arm, I think it is 42—that is not marked on that view——

Q. But it is the arm corresponding to arm 41 of Fig. 1, is that correct?

A. Yes, that is correct, and it shows on the rear side of the machine the pawl that is attached to the ratchet intended and designed to drive the chain 70. These two parts are shown in the side view of Fig. 3.

Q. But none of the mechanism that I have identified as A, B, G or C is shown, is that right?

A. Not in the side view, no.

Q. And if it was a correct side view, and if it was taken as stated on the line 3-3, Fig. 1, it would show all of them, would it not?

A. If the drawing would be correct, yes, it would.

Q. One more thing in connection with this patent: the mechanism for obtaining rocker movement of the undercut stops is the mechanism illustrated by the numbers 15, 16, 16 and 17, is that right?

A. That is right.

Q. And that mechanism rocks those stops?

A. It does.

Q. One for each revolution of the shaft 5?

A. That is right.

Q. And there is no time in which this rocking movement does not occur, is that right—as shown in the drawing?

A. As shown in the drawing, that is right.

Q. With a rocking movement occurring at each revolution with the type of stops shown and described by the Schletter patent, could you make a spliced fabric?

A. Not with any type of stop, no.

[fol. 465] Q. That is, you could not make a spliced fabric with any type of stop if you rocked it?

A. No.

Q. I wish you would turn your attention to the Kilburn patent, 19,370 of 1858. You read into the record from page 4 of the specifications the first sentence of the first full paragraph on the page, and expressed certain conclusions with respect thereto, and I ask you to read the next succeeding sentence beginning:

"If, on the other hand, the lower screw being at one end a right handed screw thread and on the other a left handed screw thread, the identical effect would be had at the opposite edges of the work equally in opposite directions by the turning of the one screw adjacent."

Can you state with that sentence in mind whether the structure of this patent was capable of widening at both sides of that fabric?

A. Not with that in mind. It would have to be excluded, because that is only a thought. It is not in the patent. That is why I did not cite it.

Q. You would not know from that disclosure how to do that, would you?

A. I did not say that, Mr. Darby.

Q. Would you know from the disclosure how to do it?

A. If I gave the necessary thought to it I think I would.

Q. My associate calls my attention to the fact that I omitted the next sentence which should have been included, which reads:

[fol. 466] "Narrowing the work may be affected by turning the screw in the reverse direction to that for widening."

The omission of that sentence does not alter your testimony at all, does it?

A. Not at all; no.

Q. Referring to the British Cotton patent, 208,362, I think one of the criticisms you advanced with respect to this patent is that it does not show opposed stops. By that you mean that the carrier rods, at least one or more carrier rods, does not have its distance of travel limited by the inside surfaces of the stop as distinguished from the outside surfaces.

A. That has nothing to do with it.

Q. Just what do you mean by opposed stops?

A. By opposed stops, whether limited by the inside of the stops or outside of the stops, I mean carrier rods which are provided with abutments working against these same carrier rods so you could make a design.

Q. By that you mean a carrier rod having an abutment working on the inside of the stops D^2 and D^3?

A. Not necessarily.

Q. They could work on the outside?

A. They could work on the outside.

Q. So it does not make any difference, so far as your definition of opposed stops is concerned whether they work on the inside or outside?

A. No, that would not make any difference. Perhaps I could make my meaning clear if I show you what are not opposed stops.

Q. You described that rather fully. So your definition of opposed stops has nothing to do with whether they abut [fol. 467] against the inside or outside of the surfaces of the stopped matter?

A. No, it would not make any difference.

Q. Now will you refer to the Claringburn patent 7068 of 1891 and state whether or not that patent shows opposed stops?

A. That patent shows opposed stops.

Q. Will you also look at the British patent to Lamb & Noon and tell me whether or not that patent shows opposed stops?

A. Most assuredly.

Q. May I ask you, Mr. Meyer, with reference to Plaintiff's Exhibit 53, which has reference to the two-needle closed split attachment sold by your company, were not the sales for the year 1935 available? I notice they are not included in here.

A. They would have been available. Sure they would. We only thought it would perhaps be better to have only a full year to make a better comparison. They can be furnished at any time.

Q. I want to get one thing very clearly established, and that is that you made no mistake in your answer to one question today: I understood you to say that 95 per cent of the split work sutures employed in the industry today is of the four-needle lap and not of the two-needle lap. Is that what you intended to say?

A. That is what I intended to say and is, I think, a fair estimate. Naturally I cannot give any positive figures unless I would assure myself that they were right.

Q. And what do you base that estimate on?

A. On my knowledge of knitting mills.

Q. And will you give me the names of the knitting mills [fol. 468] you have in mind in making that estimate that more employ four-needle lap and not two-needle lap?

A. The Berkshire; the Quaker——

Q. The Berkshire does not use a two-needle lap?

A. No. I beg you- pardon. I did not mean to say they do not use a two-needle lap at all, but not to any extent. They have isolated machines where they make two-needle lap, but——

Q. But by far——

A. But again 95 per cent of their production is four-needle lap.

Q. Who else?

A. Quaker; Apex; Joe Haines——

Q. Joe Haines?

A. Haines Hosiery Mills.

Q. H-a-y-n-e-s?

A. H-a-i-n-e-s. And Vickers, and I don't know just the names of those mills. If you give me a little time I will

make up a list for you very gladly, but I do not have these names on my finger tips.

Q. Artcraft?

A. Artcraft I am not acquainted with. I don't know what Artcraft is doing.

Q. Gotham?

A. I think to the greatest extent, yes.

Q. Kayser?

A. Kayser, yes.

Q. I guess that will be enough for my purpose.

A. Well, that is half of the industry.

Q. That is about half of the industry, is it?

A. Yes.

Q. You mean half of the industry as to quantity?

A. As far as quantity is concerned.

Q. There are some three hundred mills?

A. 360 some, but these are the big manufacturers.

I know who made the photographs of the defendant's machines which are in evidence in this case. He was a photographer by the name of Klein, and, if I recall right, [fol. 469] Mr. Ischinger was with him. The photographs were made for the plaintiff. I have made reference to the fact that some of the photographs show the material being knit. I can not tell from the photograph whether that is spliced or split work. It would make a difference in connection with whether it is spliced or split as to whether or not pins are used or not. If it was spliced work, there would be no necessity for using the pins, not in their capacity as provided for in that attachment.

Q. Could you give me the speed of operation of the modern knitting machine?

A. Around 70.

Q. That is around 70 R. P. M.?

A. Around 70 R. P. M.

Mr. Darby: That is all.

Redirect examination.

By Mr. Howson:

The Witness: The normal, usual speed of knitting machines in 1921 and 1925 was from 48 to 50.

I was asked about the absence of Mr. Schletter. I can state that he was certainly, requested to come here and

testify. His attitude was that he said he did not want to testify on account of his lifelong friendship with Mr. Louis Hirsch.

Mr. Howson: That is all.

Mr. Darby: I might make the statement for the record that the Southern District of New York is within subpœna jurisdiction of Philadelphia; at least Philadelphia is in the subpœna jurisdiction of the Southern District of New York.

Mr. Howson: That closes our case.

Sur-Rebuttal

[fol. 470] ALFRED E. ISCHINGER, recalled as a witness, having been previously sworn, testified in behalf of defendant as follows:

Direct examination.

By Mr. Darby:

Q. Mr. Ischinger, you have produced photographs for the plaintiff in this action of attachments that you obtained from the Brentmore Mills?

A. Yes, sir.

Q. You likewise testified in the case in New Jersey involving the Hofmann patent?

A. Yes, sir.

Q. You obtained the attachment which was left at the Brentmore Mills by Mr. Schletter when he left in 1922, did you not?

A. No, I did not obtain it.

Q. Were not you among the gentlemen that obtained it?

A. No, sir.

Q. Did you have charge of getting it and getting it to the courthouse?

A. No, sir.

Q. You are sure of that?

A. Yes, sir.

Q. Was it obtained under your direction?

A. No, sir.

Q. I will read your testimony to you from page 367, on direct examination in the Trenton case, as follows:

"As to what was done with the attachment which I saw at Brentmore, I will say that I requested that the attachment be obtained and that it be removed from the machine [fol. 471] at Brentmore and brought to the Textile Machine Works so that it could be incorporated in a model which would show how this device operated.

"The instructions I gave relative to the construction of that model were as follows: I instructed the man in charge of the work to complete the model in accordance with the Schletter patent in every detail, and supply all missing parts in accordance with our patent. He was instructed to use all of the parts that were obtained from Brentmore. That is the model which was on the ground floor of this building at the last session of the court.

"I show on the photograph, which is Plaintiff's Exhibit 33, what parts of that model were original parts obtained from Brentmore."

You then proceeded to describe the photograph of that machine contained on page 179 of the record in the Jersey case, Exhibit 32, and then you continued:

"Those parts I have named were parts on the Reading machine at Brentmore when I went there in 1931, and were removed therefrom and are now on the model. I checked over the model to see whether the mechanism which the erecting department at the Textile Machine Works supplied, corresponded to the mechanism shown in the patent in suit. [fol. 472] I found the mechanism to be the same throughout, except as to the ratchet operating mechanism for the pattern chain 70. That does not correspond with the construction shown in the patent.

"Where I gave instructions to make the model exactly like the patent in suit, where the mechanism had to be supplied by him he failed to make the connection to the pattern chain 70 as shown by the patent in suit. I did not discover that until it was too late to change it. I discovered it shortly before the model was to be sent to Trenton."

Did you so testify?

Mr. Howson: I object. Mr. Darby has called Mr. Ischinger as his own witness and I object to his examining him by referring to testimony in the previous case.

The Court: I do not see how you can call him for your own witness in surrebuttal and then impeach his own statement. You produced him as your witness. He says certain things. Now you ask him a question in which you are trying to put something into the record which is not sur-rebuttal. Objection sustained.

Mr. Darby: May I note an exception.

Q. Does the testimony I have read refresh your recollection as to the first question I asked when you went on the stand, namely, whether you supervised the obtaining of that machine?

[fol. 473] Mr. Howson: I object, as that is not sur-rebuttal and is a direct effort to impeach his own witness.

Mr. Darby: I am refreshing the witness's recollection and giving him an opportunity to correct it if it is refreshed.

The Court: Objection sustained.

Mr. Darby: May I note an exception.

Q. Are you familiar with the structure employing the only parts of the Schletter attachment which was produced as a model in the court in Trenton?

Mr. Howson: I object to that as not sur-rebuttal. We certainly did not take any evidence with reference to a model produced in court at Trenton. Mr. Darby tried to cross-examine some of the witnesses about it.

Mr. Darby: And the Court sustained your objection because it was not within the scope at that particular time. Subsequent to that time, however, one witness has testified that he understood that this attachment which you have now put in the form of another experimental machine, was the model——

The Court: How is that sur-rebuttal? How is his testimony in sur-rebuttal of anything that has been produced by the plaintiff here in rebuttal? It does not make any difference in this case whether there was an exhibit in that case or not. We have a collateral issue here that does not [fol. 474] affect the issue that is before this Court. I do not care what they produced there and they have not produced it here in their examination in chief. Now you want to ask about something they have not produced and get into the record something they have not offered in evidence or have not offered any evidence about. If there is anything in that

exhibit that this Court ought to have knowledge of, it has to be produced in some other manner.

Mr. Darby: May I outline the facts: it is something that they did produce down there and have not produced here. That is perfectly true, but——

The Court: Suppose they did not produce it. Then you have not any right to rebut evidence about it.

Mr. Darby: But they have produced new evidence bearing upon operability of this particular type of mechanism.

The Court: Yes. They produced evidence here that the particular thing that one witness says the patent does not cover, and another witness says it does, or implies it at least, does work and this and that can be done. You may rebut that, but that is not what you are doing.

Mr. Darby: Very well. I will go to my next point. May I preserve my record——

The Court: Yes. You may have an exception. I do not mean to say that you cannot produce and rebut by a proper [fol. 475] method any evidence that discloses a change of theory or change of condition or change of testimony over what was taken in the other case, but——

Mr. Darby: That is exactly what I was endeavoring to do.

The Court: I do not want to say you were not following the rules of evidence, as you know them probably as well as I do, but it does not seem to me that is proper sur-rebuttal evidence in view of the condition of this record.

Mr. Darby: Very well, I will go to the next point.

Q. Calling your attention to Plaintiff's Exhibit 15, and the parts A, B, G and C as shown there and the explanation of their operation, was that explanation originated by you during the trial in Trenton?

Mr. Howson: I object to that as not sur-rebuttal.

The Court: I think he may answer that.

A. Well, may I ask just what you mean by originating that explanation?

Q. I mean just exactly what you meant when you testified in the New Jersey case, and I call your attention to the testimony X Q. 28 to X Q. 35, in which you said it was originated by you from which you can get the proper meaning of the term (handing record to witness).

A. I note from these questions and answers that I had made the statement that the explanation was originated by [fol. 476] me, but I would like to add that what undoubtedly I meant at that time was that I was called upon to read the drawing, Fig. 1, of the patent, and to explain just what that mechanism was, and I offered the explanation that I did at that time.

Q. And it is likewise a fact, is it not, that the explanation was originated by you just before one of the adjournments during the trial?

Mr. Howson: I object to that if the Court please.

The Court: Objection sustained.

Mr. Darby: May I note an exception, please. That is all.

Cross-examination.

By Mr. Howson:

Q. Mr. Ischinger, what is your profession and what has been your training?

A. Well, how far back do you want me to go on that?

Q. Not too far. Are you a draftsman, a skilled draftsman?

A. Yes.

Q. And you are the resident patent attorney of the plaintiff company?

A. That is right.

Q. Will you state whether or not you made or caused to be made this perspective drawing to illustrate what is shown in the drawings of the patent in suit?

A. Yes, I had such a drawing made.

Q. Mr. Ischinger, in making that drawing did you make it entirely and exclusively from a reading of the drawings of the patent in suit?

A. Yes, sir.

Mr. Darby: I think that is going outside of the direct examination, if the Court please.

[fol. 477] Mr. Howson: I thought you asked whether he originated the drawing and why.

Mr. Darby: Originated the explanation of the operation. That is all he testified to.

Mr. Howson: If the Court please, I don't know exactly what Mr. Darby had in mind in asking any such question. Certainly I am entitled to ask the witness the circumstances

under which he originated it and how and why, and in what manner.

Mr. Darby: I had a lot in mind which was not allowed to go in the record.

The Court: I think his answer may stand to this question.

Q. And, in your opinion as a draftsman, will you state whether the attachment as shown in the perspective drawing, Plaintiff's Exhibit 15, is the things shown by the drawings of the patent in suit?

Mr. Darby: I object.

The Court: I don't think it is cross examination of this witness. The objection will be sustained.

Q. When reference was made in your examination to originating the drawing, or explanation as shown in the drawing, Plaintiff's Exhibit 15, will you state whether or not you put into that drawing anything other than that which you found in the drawings of the patent in suit?

[fol. 478] A. Well, the explanation was based entirely upon the elements that were found in Fig. 1, for example, of the patent drawings, and it was not a question of originating anything. It was merely a question of explaining what is shown in that figure.

Q. And it represents what this figure means to a skilled draftsman, is that it?

A. What it would be to any draftsman.

Mr. Darby: I object to that.

Mr. Howson: He is your witness.

The Court: Objection sustained.

Mr. Howson: That is all.

Trial Resumed

J. Lester Lincoln, called as a witness on behalf of the defendant in sur-rebuttal, being first duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

The Witness: I reside at Womelsdorf, Pennsylvania. I am Superintendent of Nolte & Horst. I have been connected

with the hosiery industry since 1917. I am familiar with the operations of Nolte & Horst Mills in producing full-fashioned hosiery. I am familiar with the equipment that is employed.

We employ exclusively the drum type of attachment in producing cradle feet.

[fol. 479] Q. How many drum type attachments do you use?

Mr. Howson: I object to this, if the Court please, on the ground that it is not sur-rebuttal.

The Court: He may answer this particular question and we will see how far this testimony goes.

Mr. Darby: I am prepared to argue with my friend on the propriety of this line.

The Witness: We use in both plants 332. We use this drum type attachment exclusively for cradle-feet and French heels and we could make other types if we were asked to—other things. We have never used a spindle type. We never used it, although we bought two. We never used it.

Q. What reason did you have for the use of the drum type in preference to the spindle type?

Mr. Howson: I object to that, if the Court please, again on the ground that it is not sur-rebuttal. To make that clear, your Honor will recall that the defendant as its defense, went into the prior art and included in the prior art patents drum type of devices. Then was the time to offer all the evidence they had to offer on this drum type device as affecting the validity of the patent in suit. Now in rebuttal, of course, we called our expert to consider the drum [fol. 480] type device in relation to the patent in direct answer to what the defendant had said. But now it is proposed to open the whole case by this witness under the guise of sur-rebuttal to bolster up its defense on the drum type of device.

Mr. Darby: Your Honor, I believe this is absolutely proper sur-rebuttal. We already put in evidence on the drum type of attachments. The plaintiff in their rebuttal case put evidence in, through their expert Meyer, that the drum type had become obsolete and had been completely supplanted by the spindle type. I think this testimony is clearly admissible as sur-rebuttal on that question.

The Court: I am doubtful, but I will let him answer subject to the objection.

The Witness: At that time we—that was about 1929, I think—bought two spindle type and after much discussion we came to the conclusion that the drum type was more flexible.

Mr. Howson: I move to strike out the answer on the same grounds as heretofore urged. In sur-rebuttal, at this stage of the case, they are going into the relative merits of the spindle device and the drum device which was offered in evidence as a defense by the defendant in the main case. I know your Honor has ruled on this and I am just making this objection so as to preserve our rights with the understanding that if your Honor wishes that it stand subject to the——

[fol. 481] The Court: It may stand subject to the motion.

Q. Will you explain what you mean by your last answer "more flexible"?

Mr. Howson: The same objection, if the Court please.

The Court: The same ruling.

A. At that time we were making double heels and things of that type, and the paramount advantage I would say in the drum type you are not limited to a 2 or a 4-needle step. It is more flexible. You can do more with it in that respect.

Mr. Darby: That is all.

Mr. Howson: No questions.

(Witness excused.)

Ray F. Borda, called as a witness on behalf of the defendant in sur-rebuttal, being first duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

The Witness: I reside at 1801 Hammond Boulevard, Reading, Pennsylvania. I am general manager of the Rosedale Knitting Company. I am familiar with the equipment employed by the Rosedale Knitting Company, in the manu-

facture of its hosiery. We have 558 knitting machines. The [fol. 482] daily production is between five and six thousand dozen per day.

Q. Don't answer this question until Mr. Howson makes an objection, if he wants to offer one: what type of suture do you employ in the stockings of your manufacture?

Mr. Howson: I object to that, if the Court please, as not sur-rebuttal. It attempts to go again, I presume, into this supposed difference between two and four-needle splits that have been fully discussed on both sides and it is simply reopening the case.

The Court: He may answer subject to the objection.

A. Two needle. We use that exclusively. We have used that exclusively since 1930.

Mr. Darby: That is all.

Cross-examination.

By Mr. Howson:

The Witness: I don't know whether the Rosedale Knitting Company, Inc., is the same company that has agreed to make a settlement with the plaintiff and accept a license under the Schletter patent. There is only one Rosedale Knitting Mills at Reading, Pennsylvania.

Mr. Howson: That is all.

(Witness excused.)

[fol. 483] ALFRED M. HAHN, called as a witness on behalf of the defendant in sur-rebuttal, being first duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

The Witness: I reside in Philadelphia, Pennsylvania. I am assistant superintendent in charge of hosiery production for Julius Kayser Company. I have been connected with the hosiery industry about thirty years. I am familiar with the machinery employed by Kayser in the production of its stockings. The total number of machines employed

by the Kayser Company is about three hundred in this country. They are divided between leggers and footers, in a ratio of about three to one. That is the usual arrangement of the knitting mill. That is, there are three leggers for every one footer. The footers are equipped with the attachment used for making cradle soles. We employ both spindle type and drum type. We employ more stud wheel type attachments or drum type attachments than spindle. These drum type attachments have been equipped comparatively recently; namely since about 1931. They are used continuously in production.

We have 67 footers in operation. It is part of my duties to see that the machinery is kept in operation. We use the drum type on a 42, 45 and 51 gauge machine. We have attachments on 20, 24 and 28 sections machines—footers.

There is no difference between cost of operation and the cost of maintenance in operation by repairs and adjust-
[fol. 484] ments and what not, with the drum type over the spindle type.

Mr. Darby: That is all.

Cross-examination.

By Mr. Howson:

The Witness: We used this drum type on the footer machines, and only in making cradle foot. They were, of course, installed before I was connected with the company, but I do know they came from a certain source. Some of the machines in the mill were knitting machines furnished by Louis Hirsch.

Q. And of those machines are there any footers?
A. Yes.
Q. What type attachments are on those?
A. They have the spindle type.

Mr. Howson: That is all.

(Witness excused.)

ALFRED FRIEDMAN, recalled as a witness on behalf of defendant in sur-rebuttal, testified as follows:

Mr. Darby: I offer in evidence the photograph which has been previously marked Defendant's Exhibit G-2 for iden-

tification, which appears on page 179 of Volume 2 of the record in the Hofmann suit, as a photograph of the model.

(Defendant's Exhibit G-2 for identification received in evidence.)

[fol. 485] Q. Will you please refer to the Defendant's Exhibit G-2 in evidence and refer to the perspective drawing, Plaintiff's Exhibit 15 for identification, and briefly but exactly point out the difference in the mechanism on that machine for effecting rotation of the cam 70 from that as illustrated on the defendant's exhibit?

Mr. Howson: I object to that, if the Court please, as not proper sur-rebuttal. The testimony with reference to this attachment of the patent in suit started when plaintiff opened its case, and in defense, if the Court will remember, Mr. Darby's witness stated that he could not understand the drawing of the patent. He was cross-examined and explained whether or not he thought this was in accordance with the drawing and then in rebuttal we called witnesses to reply to that. Now we propose to have the whole subject reopened and gone into afresh under the guise of sur-rebuttal. I do not see how it possibly can be relevant.

Mr. Darby: If the Court please, in the plaintiff's rebuttal case they put in evidence a machine, or at least photographs of a machine with the identical mechanism for effecting the rotation of the chain 70 as it is shown in this drawing, or they are substantially identical. Then, and for the first time, it developed that the mechanism that they acquired, other than that particular mechanism, was mechanism which purports to be the original parts *of* [fol. 486] the inventor made in 1921 and left at the Brentmore Mill, and were taken from the model which was in evidence as an exhibit in Trenton. Your Honor will recall the cross examination of the mechanics in connection with it where the photograph which has just been put in evidence, the photograph of the model down in Trenton, was identified. It appears for the first time that the mechanism for rotating the chain 70 is different, and while a comparison of the photograph and this drawing will enable one skilled in machinery to tell the difference between them, for the sake of the record I want to have one skilled in machinery merely recite those differences, both for convenience

and also to make sure that the differences are completely chronicled. I submit that certainly is proper sur-rebuttal.

Mr. Howson: I would like to reply briefly to that, if the Court please. This model or picture was not brought into the case by the plaintiff. No evidence was taken by the plaintiff having anything to do with this model. What happened was that during the plaintiff's rebuttal case my friend first through one witness and then through another tried to lug that in which had not been brought into the case by us at all. Now he himself having brought it in in our case proposes to use that as a basis of sur-rebuttal of our testimony.

I wish to add the further objection therefore that this is [fol. 487] utterly irrelevant and improper on the ground that there is no evidence in the case which identifies that model or establishes that it is the original model at Brentmore or is the model that was used at all in making the device of the attachment in suit.

Mr. Darby: There we have a sharp issue of fact, because the testimony certainly was, as I recall it, that the parts used in making this machine, which the plaintiff put in the first time and was testified to by plaintiff's own witnesses in rebuttal, as having been taken from this model and constituting the original parts, insofar as they were available, produced in 1921. That was plaintiff's own testimony given the first time in rebuttal, and I think that Mr. Howson has forgotten the testimony to that effect.

Mr. Howson: No. I am very well familiar with that testimony.

The Court: Is Plaintiff's Exhibit 54 the same as G-2?

Mr. Darby: No, sir.

The Court: What is this machine?

Mr. Darby: That machine consists of a regular knitting machine to which has been applied, according to plaintiff's testimony in rebuttal, parts taken from this (indicating Exhibit G-2). The difference between them is the mechanism for actuating cam 70. I think in sur-rebuttal, and I earnestly urge, that I am entitled to have the witness point out the difference between the mechanisms for actuating [fol. 488] chain 70. That is all I am asking the witness about at this stage.

The Court: He may answer, subject to the objection.

The Witness: In the photograph of the Trenton model, the chain 70 is racked by a cam on the main cam shaft 5 and transmits its power through a rearwardly extending lever fulcrummed on a bracket on the back beam of the machine, the short arm of this lever appearing to go under a pawl lever to which pawl 71 is attached. The cam, the roller, the cam lever as well as the pawl lever appear to be unmarked in the photograph.

In the perspective drawing the mechanism for actuating chain 70 consists of a lever B which is fulcrummed in the bracket *a* attached to the projection on the member 41, the long arm of B extends rearwardly and passes in a bent form over the back beam of the machine and comes to rest under the pawl lever D to which is attached the pawl 71.

Q. Have you furnished a mechanism for drum attachments in addition to your spindle type attachments?

Mr. Howson: I object, your Honor. That is not surrebuttal.

Mr. Darby: I submit it is.

The Court: Oh, he may answer.

A. Yes, we did.

Q. How recently?

A. Well, between the years 1929 to 1932, I would say.

[fol. 489] I am asked to examine these stockings handed me and state if there are commercial type sutures employed in stockings and what they are, whether they are two needle or four needle. I will state that this stocking here with the R. H. Macy Company price tag on, has a cradle foot with a two-needle lap in the straight portion, and a four-needle lap in the diagonal portion of the suture.

The Court: What do you mean by the "straight portion"?

The Witness: This straight portion of this cradle (indicating).

The Court: What do you mean by the diagonal?

The Witness: This is the diagonal (indicating).

Mr. Darby: Diagonal to the wales.

The Court: You mean this is two-needle (indicating)?

The Witness: Yes, sir.

The Court: And this is the four-needle?

The Witness: Yes, sir.

By Mr. Darby:

Q. Before you take up that other stocking, just one other question: In operating on a machine when you change from a four-needle lap to a two-needle lap, is there some special operation involved?

A. In order to make that stocking it is necessary to use two sets of abutments and two sets of carrier rod stops, one for the diagonal portion and one for the straight portion. [fol. 490] When you come to make the toe, it is necessary to take out two step stops instead of one if the spindle type like the defendant's structure was used in order to use the split carrier in the toe, which is usually done. I am referring to the type of stops.

Mr. Darby: All right, I will offer that stocking in evidence.

(Marked Defendant's Exhibit H-2.)

The Witness: This stocking marked "Style No. 11,605; Color, Putty Beige No. 2" has a cradle foot made with a four-needle lap both in the straight and in the diagonal portion of the cradle foot.

Mr. Darby: I offer that stocking in evidence.

(Marked Defendant's Exhibit I-2.)

The Witness: I am now handed these three samples which we have fastened together, being stockings of the Berkshire Mills; I will explain those.

This stocking marked "Style 573" has a two-needle lap in the straight portion of the cradle foot and a four-needle lap in the diagonal portions of the cradle foot.

The Court: The same as Exhibit H-2?

Mr. Darby: Yes, sir.

The Witness: I have here a stocking of the Berkshire Knitting Mills marked "Style No. 1007." The cradle foot [fol. 491] shows that the straight portion thereof is made with a two-needle lap and the diagonal portions thereof with a four-needle lap. That is the same as the other.

Mr. Darby: I think they are all the same, if I am not mistaken.

The Witness: The third sample from the Berkshire Knitting Mills is marked "Style No. 1069," and also has the two-

needle lap in the straight portion of the cradle foot and a four-needle lap in the diagonal portion.

Mr. Darby: I offer all three of those as one exhibit, because they are all the same except as to style numbers.

(Marked Defendant's Exhibit J-2.)

The Witness: This is a stocking that I obtained from the Rosedale Knitting Mills and shows a split cradle foot in which the straight portion as well as the diagonal portions of the cradle foot are made with the two-needle lap.

Mr. Darby: I offer that stocking in evidence.

(Marked Defendant's Exhibit K-2.)

Mr. Darby: Now, your Honor, this, quite frankly, is not sur-rebuttal. We did not have the photographs taken at the time because they were unavailable and I merely want to offer in evidence photographs of the equipment that was demonstrated to the Court. They are taken in different [fol. 492] views, perspective, front view, rear view and detailed views. We did not have the photographs available at the time of the demonstration, and that completes my case.

Mr. Howson: I don't know whether the photographs should be offered at this very last minute without giving us an opportunity of having our expert look into them and without having them explained.

The Court: They may be received, and you may take all the time you need to inspect them.

(Marked Defendant's Exhibit L-2.)

Cross-examination.

By Mr. Howson:

The Witness: Referring to the drawings of the model concerning which I testified, the difference that I have pointed out is with respect to the lever connection by which the chain 70 is pawled from the cam 35a. This connection which is shown in the model is, I would say, a practical working conception. If you did not have there this connection shown in Plaintiff's Exhibit 15, or this connection shown in the model, I would say, as a mechanic, you might have difficulty in furnishing a connection for operating that

chain 70 from the cam 35a. The reason is that I would have to consider the problem that would be involved and what the parts were already on the machine which I would have to pass. As to these connections which I see, the one in the model, that is a perfectly workable model. That is in a model which shows no other mechanism than that.

[fol. 493] I have identified or referred to certain stockings here that are marked Defendant's Exhibit J-2, and I spoke of these as manufactured by the Berkshire Knitting Mills. I got that information from the tags on the stockings. I do not know when they were made. I do not know anything else about them except that they are tagged "Berkshire Knitting Mills," and they were handed to me as having been made by the Berkshire. I have no knowledge whatever as to when they were made or what the relation is between these particular samples and the numerous other stockings that are manufactured by the Berkshire Knitting Mills.

Mr. Howson: That is all.

Mr. Howson: Now, if the Court please, during sur-rebuttal, the defendant offered in evidence a photograph of the machine that was demonstrated here during the trial and which is marked Defendant's Exhibit L-2. I just wish to make this note, that no evidence was offered on behalf of the defendant connecting any of these devices with the patents as shown, and on that ground I decided that it is unnecessary to take any sur-sur-rebuttal directed to these pictures, and we have no further testimony.

Mr. Darby: I would like to have an understanding with you, that at the argument either side may refer to the rules in the Patent Office.

Mr. Darby: That is perfectly agreeable.

[fol. 494] Mr. Howson: That is the regular official book, if there is anything relevant there.

Mr. Howson: There is only one other formal matter. There was reference made by Mr. Meyer to Sowter patent 18,461 of 1888, and I neglected to offer it, and I would like to make a formal offer of that exhibit.

Mr. Darby: No objection.

The Court: It may be received.

(Marked Plaintiff's Exhibit 57.)

Mr. Howson: I think that is all.

IN UNITED STATES DISTRICT COURT

STIPULATION AND ORDER APPROVING NARRATIVE STATEMENT OF THE EVIDENCE

The foregoing narrative statement of the testimony, taken at the trial, having been presented to me, the same is hereby approved and allowed, and is ordered filed as a statement of the evidence to be included in the record on appeal, as provided by Equity Rule 75.

Dated, August —, 1936.

Walter C. Lindley, U. S. District Judge.

Consented to: Howson & Howson, Attorneys for Plaintiff. Darby & Darby, Attorneys for Defendant.

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Vol. II

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1937

No. 62

TEXTILE MACHINE WORKS, PETITIONER,

vs.

LOUIS HIRSCH TEXTILE MACHINES, INC.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

PETITION FOR CERTIORARI FILED MAY 14, 1937.

CERTIORARI GRANTED JUNE 1, 1937.